ORDER NO. CPD0604066C1

Service Manual

Personal Computer

CF-W4

This is the Service Manual for
the following areas.
M …for U.S.A. and Canada

Model No. CF-W4HWEZZBM

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

CONTENTS

WARNINGS

For U.K.

This apparatus must be earthed for your safety.

To ensure safe operation the three-pin plug must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring.
Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.
The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe.
For your safety, if you have any doubt about the effective earthing of the power point, consult a qualified electrician.

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 3 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 3 amps and that it is approved by ASTA or BSI to BS 1362.

Check for the ASTA mark or the BSI mark on the body of the fuse.
If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.
If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

Warning: THIS APPLIANCE MUST BE EARTHED.

Important

The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

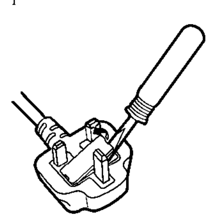
As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured GREEN-and-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ coloured GREEN or GREEN-and-YELLOW.

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured RED.

The mains plug on this equipment must be used to disconnect the mains power.
Please ensure that a socket outlet is available near the equipment and shall be easily accessible.

■ How to replace the fuse

Open the fuse compartment with a screwdriver and replace the fuse.



Warnings

- This equipment is not designed for connection to an IT power system.
  (An IT system is a system having no direct connections between live parts and Earth; the exposed-conducive-parts of the electrical installation are earthed.
  An IT system is not permitted where the computer is directly connected to public supply systems in the U.K.)
- Disconnect the mains plug from the supply socket when the computer is not in use.

This equipment is produced to BS800/1983.

1 Read Me First

Safety precautions

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacture's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.

Lithium Battery

Lithium Battery!

This computer contains a lithium battery to enable the date, time, and other data to be stored. The battery should only be exchanged by authorized service personnel.

Warning! A risk of explosion from incorrect installation or mis-application may possibly occur.

LITHIUM BATTERY ⚠

- **CAUTION**

  Danger of explosion if battery is incorrectly replaced.
  Replace only with the same or equivalent type recommended by the equipment manufacture.
  Discard used batteries according to the manufacturer's instructions.

LASER SAFETY INFORMATION

For U.S.A

Class 1 LASER-Product

This product is certified to comply with DHHS Rules 21 CFR Subchapter J.

This product complies with European Standard EN60825 (or IEC Publication 825)

For all areas

This equipment is classified as a class 1 level LASER product and there is no hazardous LASER radiation.

Caution:

(1) Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

(2) The drive is designed to be incorporated into a computer-based system or unit which has an enclosing cover. It should never be used as a stand alone drive.

Danger:

The serviceman should not remove the cover of drive unit and should not service because the drive unit is a non-serviceable part.

Please check DANGER label on bottom cabinet of the equipment.

・Unplug the AC power cord and remove the battery pack from the equipment before opening the top cover of the drive.

・When the power switch it on, do not place your eyes close to the top cover to look into the interior of the unit.

LASER Specification

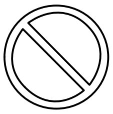
Class 1 level LASER Product

Wave Length:	DVD	650～660 nm
	CD	778～787 nm

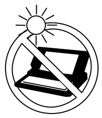
Laser safety information is appropriate only when drive with laser is installed.

Precautions

Usage



Avoid Extreme Heat and Cold
Do not store or use the computer in locations exposed to heat, direct sunlight, or extreme cold.
Avoid moving the computer between locations with large temperature difference.
Operation: 5 °C to 35 °C {41 °F to 95 °F}
Storage: -20 °C to 60 °C {- 4 °F to 140 °F}



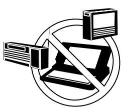
Avoid Direct Sunlight on the LCD Panel
The LCD panel should not be exposed to direct sunlight or ultraviolet light.



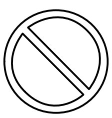
Avoid Humidity, Liquids and Dust
Do not store or use the computer in locations exposed to high humidity, liquids (including rain) or dust.



Prevent Shock
Avoid subjecting the computer to severe vibrations or impact. Do not place the computer inside a car trunk.



Avoid Radio Frequency Interference
Do not place the computer near a television or radio receiver.



Avoiding Low-temperature Burns
Avoid more than casual contact with any heat producing area of the notebook computer, AC adaptor, and any option or accessory you use with it. Even low heat, if warmer than body temperature, can cause a burn, if the skin is exposed to the heat source for a long period of time.

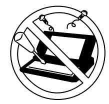
Handling



Avoid Magnetic Fields
Keep the computer away from magnets. Data stored on the hard disk may be lost.



Avoid Stacking
Do not place heavy objects on top of the computer.



Do Not Disassemble the Computer
Do not disassemble the computer using methods other than those shown in this manual.
This computer contains high-voltage parts, contact with which may result in electrical shock. Modification or incorrect disassembly may result in fire.



Avoid Excessive Force on the Display
Do not apply excessive downwardforce on the display.

Cables

Use of an interface cable longer than 3m(9.84feet) is not recommended.

Precautions (Battery Pack)

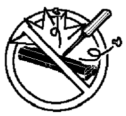
- Care should be exercised with regard to the following in order to avoid the possibility of overheating, fire or damage.



Avoid Heat
Do not throw the battery pack into a fire or expose it to excessive heat.



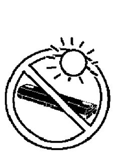
Keep Articles Away
Do not place the battery pack together with articles such as necklaces or hairpins when carrying or storing.



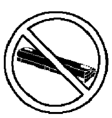
Do Not Disassemble
Do not insert sharp objects into the battery pack, expose it to bumps or shocks, deform, disassemble, or modify it.



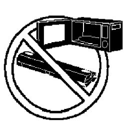
Do Not Short
Do not short the positive (+) and negative (-) contacts.



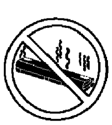
Avoid Extreme Heat, Cold and Direct Sunlight
Do not charge, use or leave the battery pack for extended periods where it will be exposed to direct sunlight, in a hot place (in a car on a sunny day, for example), or in a cold place.



Do Not Use With Any Other Computer
The battery pack is rechargeable and was intended for the specified computer.
Do not use it with a computer other than the one for which it was designed.



Do Not Put into a Microwave
Do not put the battery pack into a microwave oven or a pressurized chamber.



Stop Using
Should the battery emit an abnormal odor, become hot to the touch, become discolored, change shape, or become in any way different from normal, remove it from the computer and stop using it.

- Do not touch the terminals on the battery pack. The battery pack may no longer function properly if the contacts are dirty or damaged.
- Do not expose the battery pack to water, or allow it to become wet.
- If the battery pack will not be used for a long period of time (a month or more), charge or discharge (use) the battery pack until the remaining battery level becomes 30% to 40% and store it in a cool, dry place.
- This computer prevents overcharging of the battery by recharging only when the remaining power is less than approx. 95% of capacity.
- The battery pack is not charged when the computer is first purchased. Be sure to charge it before using it for the first time. When the AC adaptor is connected to the computer, charging begins automatically.
- Should the battery leak and the fluid get into your eyes, do not rub your eyes. Immediately flush your eyes with clear water and see a doctor for medical treatment as soon as possible.

NOTE

- The battery pack may become warm during recharging or normal use. This is completely normal.
- Recharging will not commence outside of the allowable temperature range (0 °C to 55 °C {32°F to 131 °F}).(☞ Reference Manual "Battery Power") Once the allowable range requirement is satisfied, charging begins automatically. Note that the recharging time varies based on the usage conditions. (Recharging takes longer than usual when the temperature is 10 °C {50 °F} or less.)
- If the temperature is low, the operating time is shortened. Only use the computer within the allowable temperature range.
- The battery pack is a consumable item. If the amount of time the computer can be run off a particular battery pack becomes dramatically shorter and repeated rechargings do not restore its performance, the battery pack should be replaced with a new one.
- When transporting a spare battery inside a package, briefcase, etc., it is recommended that it be placed in a plastic bag so that its contacts are protected.
- Always power off the computer when it is not in use. Leaving the computer on when the AC adaptor is not connected will exhaust the remaining battery capacity.

Saving Data on the Hard Disk

- **Do not expose your computer to shock.**
  Use care when handling your computer, shock may damage your hard disk or make your software applications and data unusable.
- **Do not power off your computer while software applications are running or hard disk drive indicator (⛁) is on.**
  Properly shut Windows* down to avoid problems.
- **Save all valuable data to disks.**
  Backing up data to disks will limit damage should trouble occur to your computer or should you inadvertently change or erase data.
- **Use the security function for all important data.**

* This computer uses Microsoft® Windows® XP Professional.

Computer Viruses

Users are advised to purchase the latest versions of virus protection software and use them regularly.

We recommend you run the software:

- After booting your Computer.
- After receiving data.
  We recommend that you check data received on disks or from external sources, such as data downloaded from the Internet, e-mail, etc. (For compressed files, uncompress them before running a check).

When Using Peripheral Devices

Pay strict attention to the following points to avoid damage to the computer, peripheral devices, cables ,etc. Also, in addition to following the manual and the Reference Manual, carefully read the instruction manuals for the peripheral devices being used.

- Use only peripheral devices that conform to the computer's specifications.
- Connect the devices properly, paying close attention to the condition and position of the connectors.
- If a connection cannot be made easily, do not apply undue force; check once more to confirm the condition and position of the connector (alignment of pins, etc.).
- If the connector has holding screws, fasten the screws firmly.
- Do not carry the computer with cables attached, and do not pull on the cables forcefully.

When Disposing of or Transferring Ownership of This Device

When disposing of or transferring ownership of this device, erase all data on the hard disk in order to prevent the theft of hard disk data. Even if you delete data or initialize the hard disk through normal Windows commands, data can still be read using special software. In order to erase all data, either have the data erased by a specialist (at a charge) or use the hard disk data erase utility (included). (Note that this hard disk data erase utility does not guarantee that data will be completely erased.)

Also note that if you transfer ownership of this device without deleting commercial software that you have installed to the hard disk, you may be in violation of licensing agreement for that software.

Usage Environment

Environment

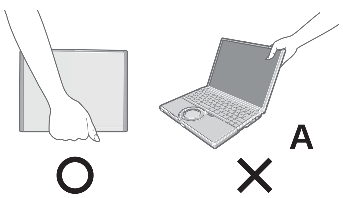
- Place the computer on a flat stable surface. Do not place the computer upright or allow it to tip over.
  When the computer receives extremely strong shock after falling, the hard disk may become inoperable.
- In use: Temperature: 5 °C to 35 °C {41 °F to 95 °F}
  Humidity: 30% to 80% RH (No condensation)
  Not in use: Temperature: -20 °C to 60 °C {-4 °F to 140 °F}
  Humidity: 30% to 90% RH (No condensation)

Places not to use your computer

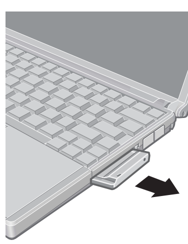


- Such areas may result in damage to the computer.
  Areas with electronic equipment
  These areas may interfere with your display or cause your computer to produce strange sounds.
  Areas with extremely high/low temperatures
- Do not leave things near the computer that are sensitive to heat. During operation, the computer may become warm.

Handling



A

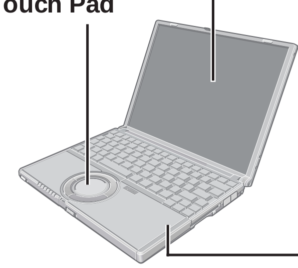


B

- This computer has been designed so as to minimize shock to the LCD and hard disk drive, etc., but no warranty is provided against such trouble. Therefore, as a precision instrument, be extremely careful in the handling.
- Do not carry the computer while the display is open, or carry it by gripping the display or the cabinet around the display (see figure A). When closing the display, ensure that the latch is positioned correctly in the slot .
- Do not carry your computer when the power is on.
- Do not drop or hit your computer against solid objects.
- Remove all external devices, cables, PC Cards sticking out of the computer (see figure B), SD memory cards, and MultiMedia Cards before transporting the computer.
- We recommend preparing a fully charged battery pack.
  When transporting a spare battery pack inside a package, briefcase, etc., it is recommended that it be placed in a plastic bag so that its contacts are protected.
- Always carry your computer with you. Never check it in with luggage. For use of the computer inside an aircraft, we recommend asking the airlines regarding their policy on this issue.
- It is a good idea to make backup copies on disks and carry them with you.

Maintenance

Touch Pad



Display

Avoid using water when cleaning the panel. Ingredients included in water may leave scratches and reduce readability of the screen.

<When cleaning dust/dirt>

Avoid rubbing off dust/dirt with cloth since it may leave scratch on the screen.
Sweep dust/dirt with fine brush, then wipe it with a dry soft cloth used for cleaning glasses.

<When cleaning oily surface>

Apply camera lens cleaner on a soft gauze and clean it with gentle force. Then, wipe with a dry soft cloth used for cleaning glasses.

Areas excluding the display

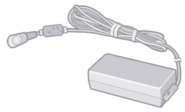
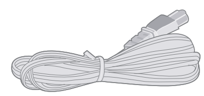
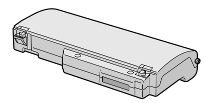
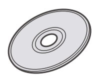
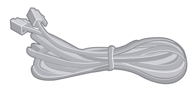
Wipe these areas with a soft cloth, after applying water or detergent diluted with water to the soft cloth and firmly wringing out excess water.

CAUTION

- Do not use benzene, thinner, or rubbing alcohol. Doing so may adversely affect the surface, e.g., discoloration. In addition, do not use commercially-available household cleaners and cosmetics, as they may contain components harmful to the surface.
- Do not directly add or spray water or detergent. If liquid enters the inside of the computer, it may cause it to work improperly or be damaged.

1.1. Accessories

Make sure the parts shown in the figure have been supplied. If any of these items are missing or is not working properly.

AC Adaptor 1	AC Cord 1	Battery Pack 1
 Model No: CF-AA1623A		 Model No: CF-VZSU40
Product Recovery DVD-ROM...............1	**Modem Telephone Cable 1**	Operating Instructions ....1 LIMITED WARRANTY ....1 Windows® Book...........1
		

Copyright

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WinDVD™ is a trademark of InterVideo, Inc.
Panasonic is a registered trademark of Matsushita Electric Industrial Co., Ltd.
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2. Specifications

● Main Specifications

CPU/ Secondary cache memory	Intel® Pentium® M Processor Ultra Low Voltage 753 (1.20 GHz, 2 MB*1 L2 cache, 400 MHz FSB)
Chip Set	Intel® 915 GMS Express chip set
Main Memory	512 MB*1, DDR2 SDRAM (1024 MB*1 Max.)
Video Memory	UMA (128 MB*1 Max.)*2
Hard Disk Drive	60 GB*3
DVD-ROM & CD-R/RW Drive	USB 2.0 connection interface, Buffer underrun error prevention function: Supported
Continuous Data Transfer Speed*4*5/ Playback	●DVD-RAM*6: 2X speed (4.7 GB*3)/1X speed (2.6 GB*3) ●DVD-R*7: 4X speed (Max.) ●DVD-RW: 4X speed (Max.) ●DVD-ROM*8: 8X speed (Max.) ●CD-ROM*8: 24X speed (Max.) ●CD-R*8: 24X speed (Max.) ●CD-RW*8: 24X speed (Max.) ●+R: 4X speed (Max.) ●+R DL: 4X speed (Max.) ●+RW: 4X speed (Max.)
Continuous Data Transfer Speed*4*5/ Recording	●CD-R write*9: 4X speed, 8X speed, 10-16X speed, 10-24X speed ●CD-RW write: 4X speed ●High-Speed CD-RW write: 4X speed, 8X speed,10X speed ●Ultra-Speed CD-RW write: 10X speed, 10-16X speed, 10-24X speed
Compatible Disk and Compatible Formats*5/Playback	●DVD-ROM (Single Layer, Dual Layer) ●DVD-Video ●DVD-R*7(1.4 GB, 3.95 GB, 4.7 GB)*3 ●DVD-RW (Ver.1.1/1.2 1.4 GB, 4.7 GB, 9.4 GB)*3 ●DVD-RAM*6 (1.4 GB, 2.8 GB, 2.6 GB, 5.2 GB, 4.7 GB, 9.4 GB)*3 ●+R (4.7 GB)*3 ●+R DL (8.5 GB)*3 ●+RW (4.7 GB)*3 ●CD-Audio ●CD-ROM (XA compatible) ●CD-R ●Photo CD (multiple session compatible) ●VideoCD ●CD-EXTRA ●CD-RW ●CD-TEXT
Compatible Disks and Compatible Formats*5/Recording	●CD-R ●CD-RW
Display Method	12.1 XGA type (TFT) (1024 × 768 dots)
Internal LCD Display	65,536/16,777,216 colors (1024 × 768 dots)*10
External Display*11	65,536/16,777,216 colors (800 × 600 dots/1024 × 768 dots/1280 × 768 dots/1280 × 1024 dots/1600 × 1200 dots/2048 × 1536 dots)
Simultaneous Display on LCD + External Display*11	65,536/16,777,216 colors (800 × 600 dots, 1024 × 768 dots)*10
Wireless LAN	Built-in Intel® PRO/Wireless 2915 ABG
LAN*12	IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX
Modem	Data: 56 kbps(V.92) FAX: 14.4 kbps
Sound	WAVE and MIDI playback, Monaural Speaker (built in)
Card Slots	PC Card Slot × 1: (One Type I or Type II, Allowable current 3.3 V: 400 mA, 5 V: 400 mA) SD Memory Card Slot*13 × 1
RAM Module Slot	DDR2 SDRAM, 172-pin, 1.8 V, Micro DIMM, PC2-3200 Compliant*14
Interface	USB Ports × 2 (USB2.0 × 29)*15 / Modem Port (RJ-11) / LAN Port (RJ-45) *12 / External Display Port: Mini Dsub 15-pin female / Microphone Jack: Miniature jack, 3.5 DIA / Headphone Jack: Miniature jack, 3.5 DIA / Mini Port Replicator connector : Dedicated 50-pin male
Keyboard/Pointing Device	83 keys/Touch Pad
Power	AC adaptor or Battery pack
AC Adaptor*16	Input: 100 V - 240 V AC, 50 Hz/60 Hz Output: 16 V DC, 2.5 A
Battery Pack	Li-ion 7.4 V, 7.8 Ah
Operating Time*17	Approx. 4 hours - 7.5 hours*18 (Approx. 5.5 hours*19) (Disable Economy Mode (ECO))
Charging Time*20	Approx. 5 hours (Power off)/Approx. 6.5 hours (Power on)

Main Specifications

Power Consumption[*21]			Approx. 35 W[*22] / Approx. 40 W (maximum when recharging in the ON state)
Physical Dimensions (W × H × D)			268 mm × 24.9 mm (at the front)/44.3 mm (at the rear) × 210.4 mm (excluding protrusion) {10.6 " × 1.0 " / 1.8 " × 8.3 "}
Weight[*23]			Approx. 1290 g {2.8 lb.}
Environment	Operation	Temperature	5°C to 35°C {41°F to 95°F}
		Humidity	30% to 80% RH (No condensation)
	Storage	Temperature	-20°C to 60°C {-4°F to 140°F}
		Humidity	30% to 90% RH (No condensation)
OS[*24]			Microsoft® Windows® XP Professional with Service Pack 2 with Advanced Security Technologies (NTFS File system)
Pre-installed Software[*24]			Microsoft® Internet Explorer 6 Service Pack 2 / DirectX 9.0 c / Microsoft® Windows® Media Player 10 / Microsoft® Windows® Movie Maker 2.1 / Microsoft® .NET Framework 1.1 / Adobe Reader / Intel® PROSet/Wireless Software <Only for models with wireless LAN> / SD Utility / Icon Enlarger / Loupe Utility / Touch Pad Utility / DMI Viewer / PC Information Viewer / WinDVD™5 (OEM Version) / B's Recorder GOLD8 BASIC / B's CLiP 6[*25] / Hotkey Settings / Optical Disc Drive Power-Saving Utility / Wireless LAN Switch Utility <Only for models with wireless LAN> / Economy Mode (ECO) Setting Utility / Battery Recalibration Utility / Infineon TPM Professional Package[*28]
			Setup Utility / Hard Disk Data Erase Utility[*26] / Hard Disk Backup Utility[*26]

*1 1 MB = 1,048,576 bytes

*2 A segment of the main memory is allotted automatically depending on the computer's operating status. The size of the Video Memory cannot be set by the user.

*3 1 GB = 1,000,000,000 bytes. Operating system or some application software will report as fewer GB.

*4 Data transfer speeds indicate values measured by Matsushita Electric Industrial Co., Ltd. The data transfer rate of DVD per 1X speed is 1,350 KB/s. The data transfer rate of CD per 1X speed is 150 KB/s.

*5 Performance of CD-R, CD-RW, DVD-RAM, DVD-R, DVD-RW, +R, +R DL, and +RW cannot be guaranteed depending on writing status and recording format. Also, some data cannot be played back depending on the disk, settings, and environment being used.

*6 In the case of DVD-RAM, only non-cartridge disks or removable cartridge disks can be used.

*7 DVD-R is compatible with 4.7 GB (for General) playback. DVD-R (for Authoring) playback is compatible with disks recorded using Disk-at-Once recording.

*8 If an unbalanced disk (e.g., a disk with which the balance has been displaced from the center) is inserted, the speed may become slower if there are large vibrations while the disk is rotating.

*9 Depending on the disk, the writing speed may become slower.

*10 A 16,777,216 color display is achieved by using the dithering function.

*11 Display may be impossible using some connected external displays.

*12 Some devices cannot be used depending on the port type.

*13 Operation has been confirmed for Panasonic SD memory cards with up to 2 GB capacity. The transfer rate using the SD memory card slot on this computer is 8 MB per second (this is a theoretical value, and differs from actual speeds). The transfer rate is 8 MB per second even if you use an SD memory card that supports high-speed transfer rates. Does not guarantee connection/ operation of all SD devices. Does not support MultiMedia card. Do not insert MultiMedia card.

*14 Only a RAM module designed for DDR2 (PC2-3200) can be added (Panasonic : CF-BAV0256U / CF-BAV0512U).
JEDEC standard 214 pin Micro DIMM cannot be used. PC2100 / PC2700 172 pin Micro DIMM cannot be used.

*15 Does not guarantee operation of all USB-compatible peripherals.

*16 <Only for North America>
The AC adaptor is compatible with power sources up to 240 V AC adaptor. This computer is supplied with a 125 V AC compatible AC cord.

*17 Varies depending on the usage conditions, CPU speed, etc. Measured value when the power saving function on the USB2.0 USB Root Hub is set to on. (At the time of purchase, the power saving function is set to off.)
When Economy Mode (ECO) is enabled, the operating time becomes approximately 20% shorter than when it is disabled.

*18 Measured using BatteryMark™ Version 4.0.1 (LCD brightness : Maximum - Minimum).

*19 Measured using MobileMark™ 2002 (LCD brightness : 60 cd/m^2).

*20 Varies depending on the usage conditions, CPU speed, etc.
It may take a long time to charge a fully discharged battery.

*21 Approx. 1.5 W when the battery pack is fully charged (or not being charged) and the computer is off.

[*22] Rated power consumption.
[*23] Average value. May differ depending on models.
[*24] Operations of this computer are not guaranteed except for the pre-installed OS.
[*25] Preinstalled B's CLiP does not support CD-R.
[*26] The Product Recovery DVD-ROM is required.
[*28] For information on TPM, input [c:\util\drivers\tpm\README.pdf] in [start] - [Run] and refer to the installation manual of "Trusted Platform Module (TPM)". You need to install Infineon TPM Professional Package to use TPM.

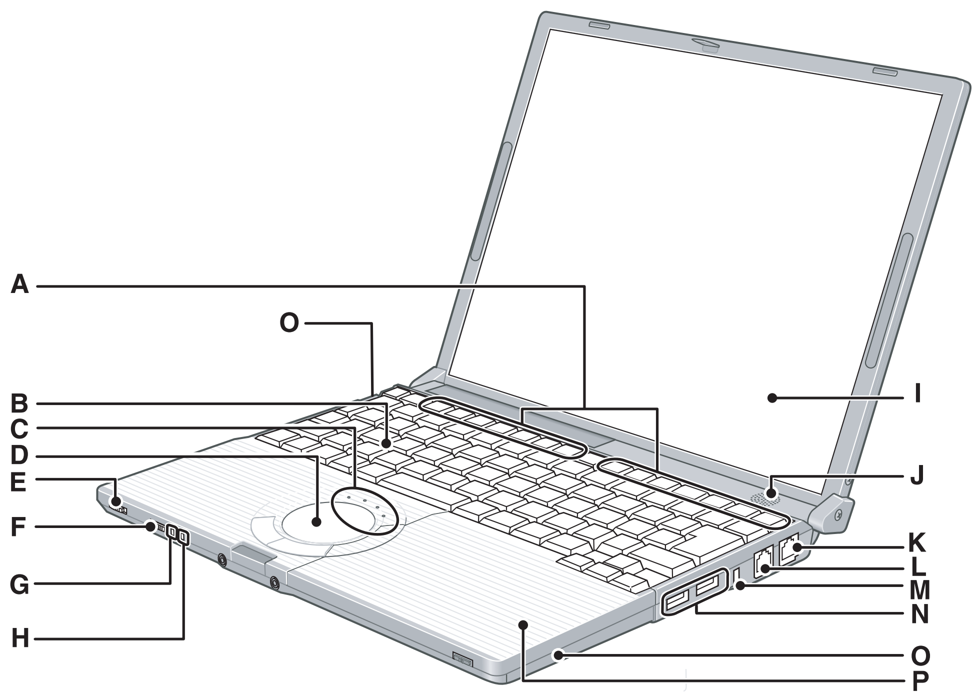
● Wireless LAN <Only for models with wireless LAN>

Data Transfer Rates	IEEE802.11a: 54/48/36/24/18/12/9/6 Mbps (automatically switched)[*27] IEEE802.11b: 11/5.5/2/1 Mbps (automatically switched)[*27] IEEE802.11g: 54/48/36/24/18/12/9/6 Mbps (automatically switched)[*27]
Standard Supported	IEEE802.11a/IEEE802.11b/IEEE802.11g
Transmission Method	OFDM system, DS-SS system
Wireless Channels Used	IEEE802.11a: Channels 36/40/44/48/52/56/60/64/149/153/157/161/165 IEEE802.11b/ IEEE802.11g: Channels 1 to 11
RF Frequency Band	IEEE802.11a: 5.18 - 5.32 GHz, 5.745 - 5.825 GHz IEEE802.11b/ IEEE802.11g: 2412 - 2462 MHz

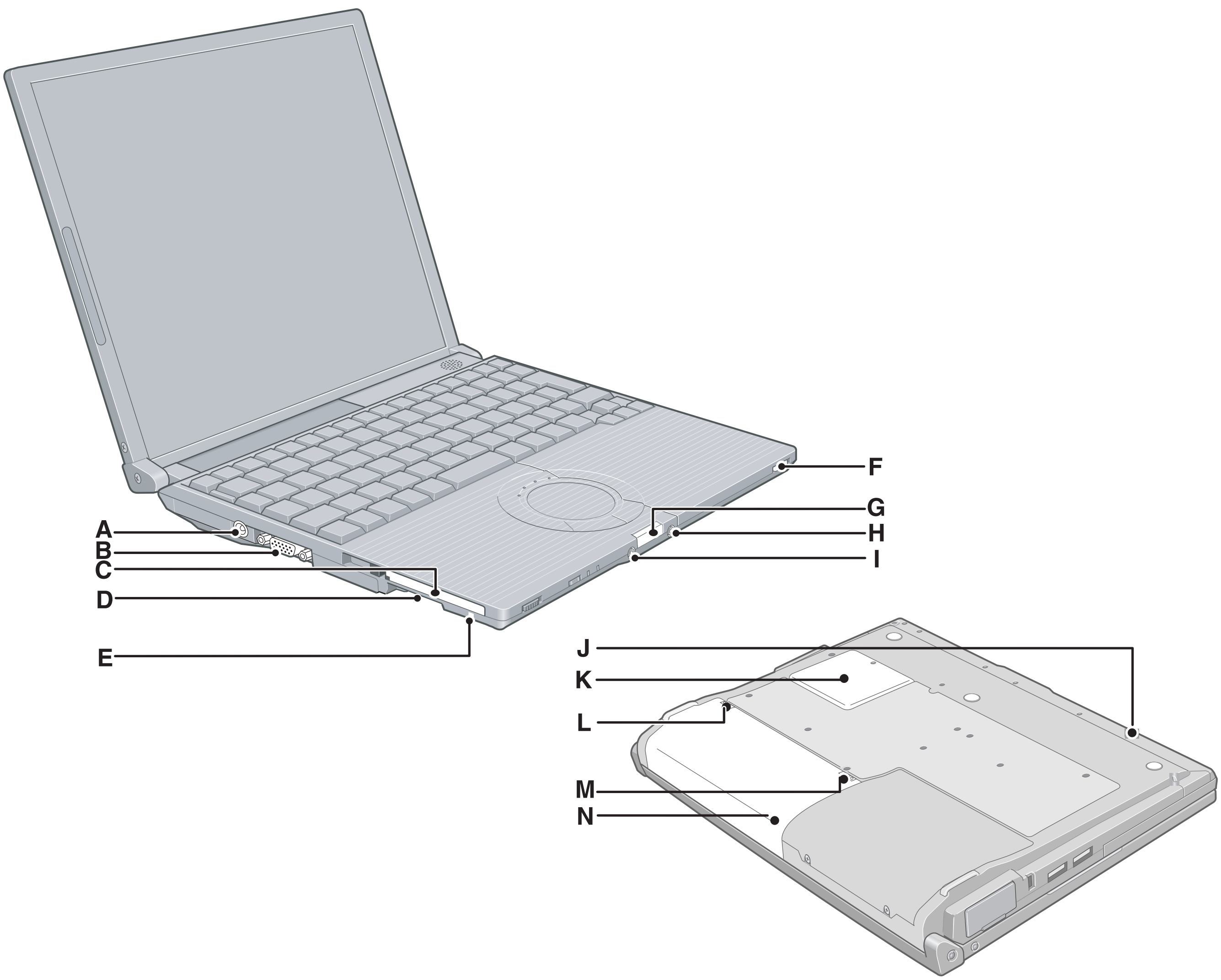
[*27] These are speeds specified in IEEE802.11a+b+g standards. Actual speeds may differ.

3. Names and Functions Parts

Names					
A	Function key		I	Display (internal LCD)	
B	Keyboard		J	Speaker	
C	State indicator		K	LAN connector	
D	Wheel pad		L	Modem connector	
E	Power switch/Power indicator		M	Security lock	
F	Wireless LAN switch	WIRELESS LAN	M	USB connector	
G	Economy-mode (ECO) indicator	ECO	O	Wireless LAN antenna (built-in)	
H	Battery indicator		P	CD/DVD drive	



Names							
A	Power terminal	DC IN 16V	H	Microphone input terminal			
B	External display connector		I	Audio output terminal			
C	PC card slot		J	Emergency hole			
D	SD memory card slot		K	Additional memory slot			
E	SD memory card indicator	SD	L	Latch			
F	Drive power switch/Eject switch		M	Latch			
G	Display latch		N	Battery pack			

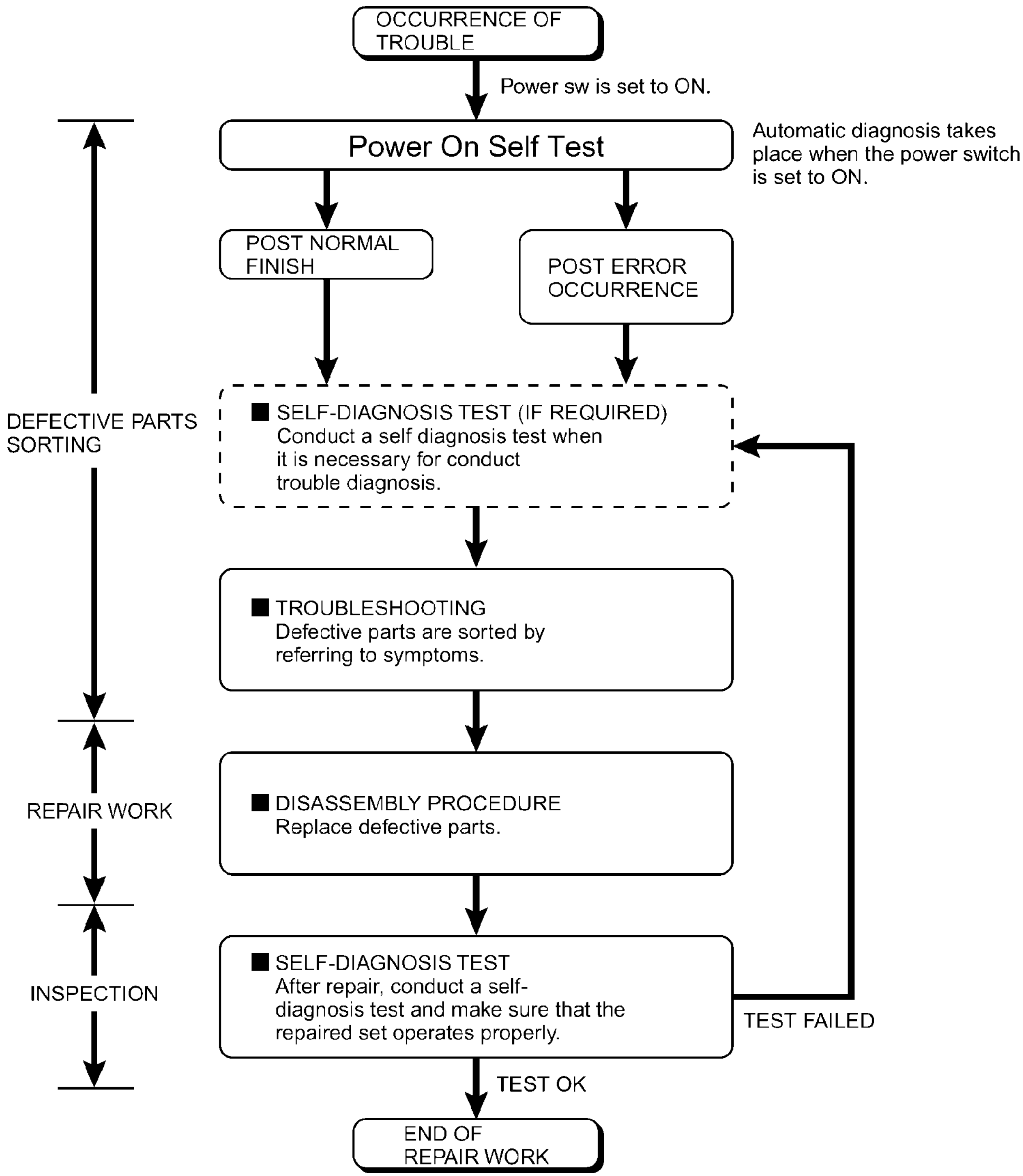


4 Diagnosis & Repair

4.1. Basic Procedures

The basic procedures for diagnosis, disassembly, and test of defective parts of a set to be repaired are summarized below. For details, refer to relevant pages in the Service Manual.

- **Flow Chart**

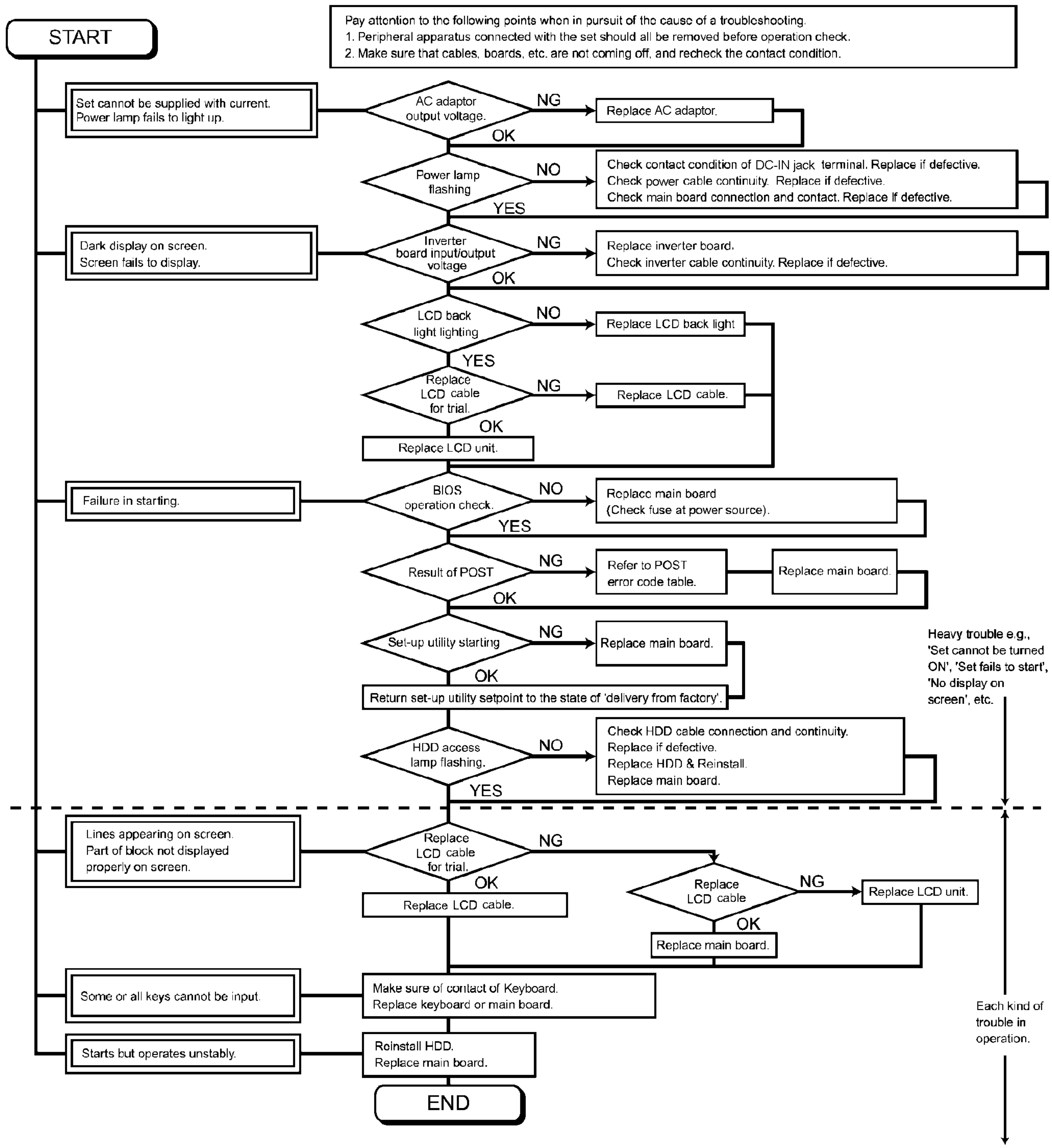


4.2. Troubleshooting

Please take note of the following two points with regard to troubleshooting:

1. Diagnosis upon occurrence of heavy troubles, e.g. 'System cannot be turned ON', 'System fails to start', 'No display on screen', etc.
2. Explanation of each trouble, mainly symptom of trouble in operation.

- **Flow Chart**



When a problem occurs, refer to this page. The "Reference Manual" also contains detailed information. If a problem appears to be related to a software application, read the software related manual. If you still cannot troubleshoot the problem, contact your technical support office. You can use the PC Information Viewer to check the computer's usage status.

Starting Up

The power indicator or battery indicator is not lit	● Check the cable connection for the AC adaptor. ● Check to see if a fully charged battery is properly inserted. ● Remove the battery pack and disconnect the AC adaptor, then connect them again.
The computer does not operate when a USB device is connected	● The computer may not operate when certain USB devices are connected. Disconnect the USB device, or set [Legacy USB Support] to [Disable] in [Advanced] menu of the Setup Utility .
[Enter Password] is displayed	● Input your Supervisor Password or User Password. If you have forgotten it, contact your technical support office.
POST Startup Error (s) is displayed	
Windows startup, or an operation is extremely slow	● Press F9 in the Setup Utility. This will restore the Setup Utility's settings to their default values (except the password settings). Then, the Setup Utility must be run once again for you to input the appropriate operating environment settings. (The processing speed depends on the application software used, so this operation may not cause the processing speed to increase.) ● If operations slow down during streaming playback, try changing the number of colors of the display.
The date and time are incorrect	● You can set the date and time using the following menu: Windows XP [start] - [Control Panel] - [Date, Time, Language, and Regional Options] - [Date and Time] ● If you continue to experience problems, the internal battery maintaining the clock may need to be replaced. Contact your technical support office. ● When the computer is connected to a LAN, confirm the date and time of the server. ● This computer will not correctly recognize the date and time starting from the year 2100 A.D.
When resuming from the standby or hibernation mode, [Enter Password] does not appear even if a password has been set in the Setup Utility	● Even when a password has been set in the Setup Utility, [Enter Password] does not appear when the computer resumes from the standby or hibernation mode. If you want to use the security function when using the standby or hibernation mode, use the Windows password as follows: Windows XP Select the account to change in [start] - [Control Panel] - [User Accounts] and set the password, then add the check mark for [Prompt for password when computer resumes from standby] in [Control Panel] - [Performance and Maintenance] - [Power Options] - [Advanced].
When "Invalid system disk. Replace the disk, and then press any key." (or a similar message) is displayed	● This means a floppy disk that does not contain system startup information has been left in the floppy disk drive. Remove the floppy disk, and press any key. ● This message may appear when certain USB devices are connected. Remove the USB device, or set [Legacy USB Support] in [Advanced] menu of the Setup Utility to [Disable]. ● If the message still appears even after trying the above two measures, this may be an indication that some type of hard disk failure has occurred. Contact your technical support office.

Starting Up (continued)

When the administrator password is forgotten	● Set the password again in the following procedure. Windows XP If you have created a password reset disk, a message is displayed when you fail to correctly enter the password. Follow the message's instructions and set the password again by using the password reset disk. If you have not created a password reset disk, after reinstalling, setup Windows and then set the password again.
When the previous item is not the cause	● Press F9 in the Setup Utility. This will restore the Setup Utility's settings to their default values (except the password settings). ● Try removing all peripheral devices. ● Check a disk error using the following procedure. *1* Display [Local Disk (C:) Properties]. Windows XP Select [Local Disk(C:)] with the right button in [start] - [My Computer], and select [Properties]. *2* Select [Tools] - [Check Now]. *3* Select [Start] after selecting required items in [Check disk options]. ● At startup, hold down F8 when [Panasonic] boot screen disappears, and release your finger when the Windows Advanced Option Menu is displayed. Start the computer in Safe Mode, and confirm the details of the error.

Display

No display after powering on	● When there is no display to an external display , • Check your cable connection to the external display . • Confirm your display is powered on. • Check the settings for your external display . ● The display destination may be set to the external display . Try changing the display destination by pressing Fn + F3 . If you want to switch the display destination repeatedly by pressing Fn + F3 , make sure that the display destination has switched completely each time before pressing Fn + F3 again.
The power has not been turned off, but after a certain period of time, there is no display	● Has the computer been set to the power-saving mode? To resume operation of your computer from the condition the power of the display is off (for energy conservation purposes), press any key unrelated to the direct triggering of a selection, like Ctrl . ● To save power, your computer may have automatically entered the standby mode (power indicator blinks green) or hibernation mode (power indicator turns off). In such cases, slide the power switch.
When the battery pack is used, the screen is darker than when the AC adaptor is connected	● Press Fn + F2 and adjust the brightness. Note, however, that when the brightness is increased, the battery running time will become shorter . Brightness can be set to separate levels for when the AC adaptor is connected and when it is disconnected.
The cursor cannot be controlled properly	● If you are using an external mouse, ensure that the external mouse has been connected correctly . ● Restart the computer by using the keyboard (Press [Windows key] , U , and select [Restart] with → ← ↑ ↓, then press Enter). ● If the computer does not respond to keyboard commands, read "No response".

Display (continued)

An afterimage appears (e.g., green, red, and blue dots remain on the display) or there are dots not displaying the correct colors	● If an image is displayed for a prolonged period of time, an afterimage may appear. This is not a malfunction. The afterimage will disappear when a different screen is displayed. ● High-precision and advanced technologies are necessary in the production of color liquid crystal displays (color LCDs). Therefore, if 0.002% or less of the picture elements either fail to light or remain constantly lit (that is, more than 99.998% of elements are functioning properly), no defect is considered to exist.
The screen becomes disordered	● Changing the number of colors or resolution of the display may affect the screen. Restart the computer.
The external display no longer displays properly	● When an external display not compatible with the power saving mode is used with the computer, the display may not function correctly when the computer enters the power saving mode. In such cases, turn off the power to the external display.
During simultaneous display,the screen of the external display becomes disordered	● Try changing the display by pressing Fn + F3 . ● If you continue to experience problems, try changing the display destination in the following menu: Windows XP [start] - [Control Panel] - [Other Control Panel Options] - [Intel(R) Extreme Graphics] - [Devices]
When an MPEG file is being played with Media Player, the display destination cannot be switched using Fn + F3	● The display destination cannot be switched while an MPEG file is playing. Stop playing the MPEG file before switching the display destination.
Application is not displayed properly, or characters are garbled	● Is the application a non-Unicode program? When non-Unicode programs are run on Windows XP, you must select the language appropriate to that program. Set [Language for non-Unicode programs] in [Control Panel] - [Date, Time, Language, and Regional Options] - [Regional and Language Options] - [Advanced] . Note that only a user with the administrator authority can change this setting.

Shutting Down

Windows cannot be shut down or restarted	● If a USB device is connected, try removing it.

Battery Indicator

The red indicator lights	● The battery level is very low (the charge is less than approx. 9% capacity). Connect the AC adaptor. You can use the computer when the indicator light is orange. If you do not have an AC adaptor, save your data and power off your computer. After replacing the battery pack with a fully charged one, turn your computer on.
The red indicator blinks	● Quickly save your data and power off your computer. Remove the battery pack and disconnect the AC adaptor, then connect them again. If the problem persists, contact your technical support office. Possible failure in failure in the battery pack or charging circuit.
The orange indicator blinks	● Battery cannot be recharged temporarily because the internal temperature of the battery pack is outside of the acceptable temperature range for recharging. Once the allowable range requirement is satisfied, charging begins automatically.Your computer can be used normally in this state.

Sound

When starting Sound Recorder, it displays the message: “There was an error updating the registry.”	● Sound Recorder displays this error message when started by a user with a limited account if the user’s language setting is different to that of the user with administrator authority which last started it . This will not affect the operation of the computer.

Reference Manual

The Reference Manual is not displayed	● Is Acrobat Reader installed? If Acrobat Reader is not installed, run the following*[1] in [start] - [Run] to reinstall the program. When installing the program, do not change the installation destination folder. If the destination folder is changed, the Reference Manual cannot be opened from [start]*[2] menu. *[1] English : [c:\util\reader\m\acroreader51_enu_full.exe] Traditional Chinese : [c:\util\reader\tc\acroreader51_cht_full.exe] Simplified Chinese : [c:\util\reader\sc\acroreader51_chs_full.exe]

SD Memory Card

Cannot log on with the SD memory card	● Windows logon user name and password are not set in the SD memory card correctly. Enter the Windows user name and password without using the SD memory card. After logging on, reset the SD memory card, or use the [Control Panel] to create a user with the user name and password set on the SD memory card. ● If you change the setting for Language for non-Unicode programs after the check mark has been added in [Use when logging on to Windows] under [SD Card Settings] - [Setting for this SD card], remove the check mark from [Use when logging on to Windows] under [SD Card Settings] - [Setting for this SD card], and set the user name and password again.
Cannot use the SD memory card	● When using the SD memory card with other peripheral devices, format the SD memory card using the peripheral device. For details, refer to the instruction manual for that device. Note that the SD memory card is not supported by formats other than the SD memory card standard.

Fast User Switching Function Windows XP

Some applications may not work properly	● When switching to a different user with the Fast User Switching function, the following problems may occur. • Some applications may not work properly. • Key combination with Fn may not work. • It may not be possible to set the settings of the display. • The wireless LAN cannot be used. • The B's CLiP icon will no longer be shown on the taskbar and a CD-RW disc cannot be written on. In this case, log off all users, and try the operation once more. If the problem persists, restart the computer.

Disk Operations

If the DVD-ROM & CD-R/RW drive vibrates excessively or is noisy	● Is the disc bent or labeled? ● Check to see if the disc is inserted correctly, and check that the disc is in good condition. If the disc is good and inserted correctly, set [DVD Drive Speed] to [Low] in the Setup Utility.

Others

No response	● Press Ctrl + Shift + Esc to open Task Manager and close the software application which is not responding. ● After shutting down by sliding the power switch for more than four seconds, slide the power switch to power on and open the application again. If the program no longer works normall, delete the program using the following menu. Then reinstall the program. Windows XP : [start] - [Control Panel] - [Add or Remove Programs]

4.2.1. List of Error Codes

The following is a list of the messages that BIOS can display. Most of them occur during POST. Some of them display information about a hardware device, e.g., the amount of memory installed. Others may indicate a problem with a device, such as the way it has been configured. Following the list are explanations of the messages and remedies for reported problems.
If your system displays any of the below error messages other that the ones marked with an asterisk (*), write down the message and contact your technical support office. If your system fails after you make changes in the Setup menus, reset the computer, enter Setup and install Setup defaults or correct the error.

0200 Failure Fixed Disk
Fixed disk in not working or not configured properly . Check to see if fixed disk is attached properly . Run Setup. Find out if the fixed-disk type is correctly identified.

0211 Keyboard error
Keyboard not working.

0212 Keyboard Controller Failed
Keyboard controller failed test. Requires repair of system board.

0213 Keyboard locked - Unlock key switch
Unlock the system to proceed.

0230 System RAM Failed at offset : nnnn
System RAM failed at offset nnnn of in the 64k block at which the error was detected.

0231 Shadow RAM Failed at offset : nnnn
Shadow RAM failed at offset nnnn of the 64k block at which the error was detected.

0232 Extended RAM Failed at offset : nnnn
Extended RAM Failed at address line : nnnn
Extended memory not working or not configured properly at offset or address line nnnn.

0250 System battery is dead - Replace and run SETUP
The CMOS backup battery is dead. Replace the battery and run Setup to reconfigure the system

***0251 System CMOS checksum bad - Default configuration used**
System CMOS has been corrupted or modified incorrectly , perhaps by an application program that changes data stored in CMOS. The BIOS installed Default SETUP Values. If you do not want these values, enter Setup and enter your own values. If the error persists, check the system battery or contact your technical support office.

0260 System timer error
The timer test failed. Requires repair of system board.

0270 Real time clock error
Real-time clock fails BIOS test. Requires repair of system board.

0271 Check date and time settings
Real-time clock is illegal. Run Setup and set the date and clock.

***0280 Previous boot incomplete - Default configuration used**
Previous POST did not complete successfully. POST loads default values and offers to run Setup. If the failure was caused by incorrect values and they are not corrected, the next boot will likely fail. On systems with control of wait states, improper Setup settings can also terminate POST and cause this error on the next boot. Run Setup and verify that the wait-state configuration is correct. This error is cleared the next time the system is booted.

02D0 System cache error - Cache disabled
Contact your technical support office.

Failing Bits : nnnn
The hex number nnnn is a map of the bits at the RAM address which failed the memory test. Each 1 (one) in the map indicates a failed bit. See error 230,231 or 232 for offset address of the failure in System, Extended or Shadow meory.

Operating System not found
Operating system cannot be located on either drive A: or drive C:. Enter Setup and see if fixed disk and drive A: are properly identified.

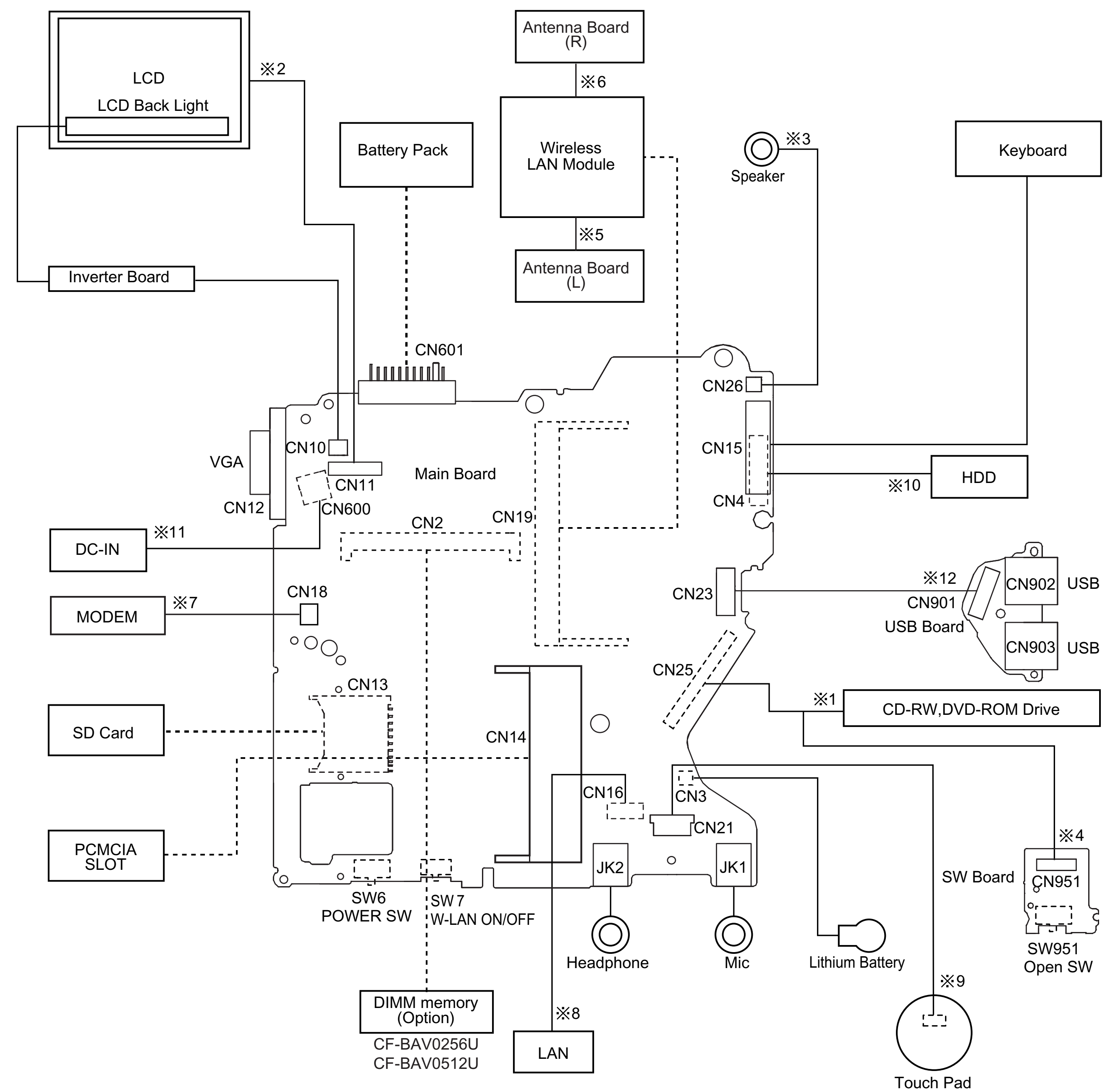
Press <F1> to resume, <F2> to Setup
Displayed after any recoverable error message. Press <F1> to start the boot process or <F2> to enter a Setup and change the settings. Write down and follow the information shown on the screen.

4.3. Connection Diagram

Connection by Cable
Direct connection Connectors
Parts on Bottom Side

Connection Cable

※1	Drive FFC	DFJK9000ZA
※2	LCD Cable	DFJS957ZA
※3	Speaker Cable	DFJS962ZA
※4	SW Board FFC	DFJK20T108BB
※5	Antenna PCB-L	N1ZYYY000002
※6	Antenna PCB-R	N1ZYYY000001
※7	Modem Cable	DFJS959ZB
※8	LAN Cable	DFJS979ZA
※9	PAD FFC	DFJK12U112BB
※10	HDD FPC Unit	DL3UP1443AAA
※11	DC-IN Cable	DFJS961ZB
※12	Main-Sub Cable	DFJS960ZA



4.4. Power-on Self Test (Boot Check)

4.4.1. Outline of POST

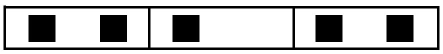
The set has a boot check function called POST (Power-On Self Test) in it. The condition of the main body is disgnosed by checking beep sound or error code.

- Start ……………. Test begins automatically when power switch is set to ON.
- Nomal finish …… After memory checking, a beep sound is issued once and the set is placed into automatic stop.

Note: If error occurs, nothing is displayed. (No display of OK, etc.)

4.4.2. Error Diagnosis by Checking Beep Signal Sound

The beep sound is as follows:


(2-1-2)

(Length of bar shows length of sound)

- Table of errors classified by beep sounds

Diagnosis	Beep signal sound	Error message
Main board	1-2-2	DMA Controller error
	1-2-3	DMA Controller error
	1-3-3	DMA Slave error
	1-3-4	DMA Master error
	1-4-4	Keyboard Controller error
	1-3-1	Memory error
	1-2-4	Refresh error
	1-1-3	CMOS error
	1-2-1	Timer error
	1-4-1	Interrupt Controller (Master) error
	1-4-2	Interrupt Controller (Slave) error
	4-1-4	PCI error
	4-2-1	PCI error

(Note) A beep sound is also issued in case of other I/O trouble.

4.4.3. Diagnosis by Error Code

Error code	Message	Error Description	Possible faulty part
0200	Failure Fixed Disk	Fixed disk in not working or not configured properly. Run the Setup Utility and check that the hard disk capacity is displayed at [Primary Master] If the [None] is displayed, disk error is occurred.	HDD Main board
0211	Keyboard error	Keyboard not working. Confirm the keyboard is connected to the computer and that a key is not being held down.	Keyboard
0212	Keyboard Controller Failed	Keyboard controller failed test. May require replacing keyboard controller.	Main board
0230	System RAM Failure at offset : *nnnn*	System RAM failure at offset *nnnn* of the 64k block at which the error was detected. If you installed RAM module, remove the RAM module and reinstall it	Main board
0231	Shadow RAM Failure at offset : *nnnn*	Shadow RAM failure at offset *nnnn* of the 64k block at which the error was detected. If you installed RAM module, remove the RAM module and reinstall it	Main board
0232	Extended RAM Failure at offset : *nnnn*	Extended memory not working or not configured properly at offset *nnnn.*	Main board Extension memory
0250	No battery on the system	CMOS backup battery exhausted. Battery replacement is required.	Lithium battery
0251	System CMOS checksum bad -Default configuration used	System CMOS has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS. The BIOS installed Default SETUP Values. If you do not want these values, enter Setup and enter your own values. If the error persists, check the system battery or contact Panasonic.	Incorrect Setup Lithium battery
0260	System timer error	The timer test failed. Requires repair of system board.	Main board
0270	Real time clock error	Real-time clock fails BIOS test. May require board repair.	Main board
0271	Check date and time settings	Incorrect date and time on the system. Set the correct date and time using the setup utility.	Incorrect Setup
0280	Previous boot incomplete -Default configuration used	Previous POST did not complete successfully. POST loads default values and offers to run Setup. If the failure was caused by incorrect values and not corrected, the next boot will likely fail.	Boot-up failure
02D0	System cache error -Cache disabled	CPU trouble.	Main board
02F5	DMA Test Failed	Server BIOS2 test error: Cannot write to extended DMA	Main board

5 Self Diagnosis Test

1. Floppy disk is included for the self-diagnostic tests that should be performed before using this product.
2. Connect External Floppy Disk Drive (FDD) to USB port for diagnosis test.

Important notice

System password

This product has a password function. If this function is turned on, the self-diagnostics tests will not work.
You will need ask the user for the password before performing the self-diagnostics.

5.1. Outline of Self Diagnostic Tests

Insert the diagnostics floppy disk

↓

Return the setup contents to default

● Starting up the setup utility

① Turn on the power.
② When "Panasonic Press F2 to enter setup" appears on the screen, press F2.
③ Press "→" to select [Exit]
④ Press " ↓ " to select [Get default value]
⑤ Press Enter.
⑥ Choose Yes for "Load default Configuration now?"
⑦ Select "Save Values & Exit" and press Enter.
⑧ Choose Yes for "Save Configuration changes and exit now?" and press Enter.

↓

Choose test from the menu screen to start the test.

Caution:
After completing repairs, be sure to carry out the Automatic test and Peripheraltest.

● Menu Screen

1. DIAG on FD
2. LAN test
3. SD I/F test
4. Modem test
5. Wireless LAN test (Wireless LAN Model only)
6. CD test

Q. Quit

↓

<Automatic test>	<Peripheral test>	<Test selection>
Tests selected (O) from the test item list will be performed in succession. 1. DIAG on FD	The parallel devices can be tested. 2. LAN test 3. SD I/F test 4. Modem test 5. Wireless LAN test (Wireless LAN Model only) 6. CD test	Specifc tests required can be freely selected and performed from the test item list. Be sure to carry out the Selection test only when necessary.

↓

Problems in the unit are located and divided according to error messages that occur during testing.

5.1.1. List of main test items

The selection item displays the items selected under Automatic test. If you select Automatic test, these test items will be performed automatically. You can use Selection test to choose items from the menu screen that you want to have tested.
These items are shown below.

	Test classification	Test items shown on the screen	Contents	Select
1		SPEAKER TEST	Speaker test	○
2		VESA MODE TEST	VESA mode test	○
3	CPU (CPU related)	A20 GATE TEST	Address A20 line	○
4		CACHE ON/OFF TEST	Cache memory on/off test	—
5		NPU OPERAND TEST	Floating point processor function test	○
6	RAM (Memory related)	RAM STANDARD TEST	Memory standard test	○
7	CONTROL (Control ICs on the main board, etc.)	DMA PAGE REG TEST	DMA page register test	○
8		DMA REGISTER TEST	DAM register test	○
9		DMAC TRANSFER TEST	DAM transfer test	○
10		PIC HALT INSTRUCTION TEST	Interrupt controller halt instruction test	○
11		PIC REGISTER TEST	Interrupt controller register test	○
12		RTC CMOS RAM TEST	Real time clock CMOS test	○
13		RTC TEST	Real time clock test	○
14		PIT CH0 TEST	interrupt timer CH0	○
15		PIT CH1 TEST	interrupt timer CH1	○
16		PIT CH2 TEST	interrupt timer CH2	○
17	IO (Input-output)	KEYBOARD REG TEST	Keyboard test	○
18		PS/2 MOUSE REG	Mouse registration test	○
19	COMMUNICATION	SERIAL WRAP TEST	Serial loop back (jig required)	—
20		SERIAL ALL INTERNAL TEST	Serial port interior test	—
21		PARALLEL REGISTER R/W	Parallel register R/W test	—
22	AUX (Auxiliary functions)	PCIC ALL TEST	PCIC test	○
23		Card Bus Reg	Card Bus register test	○
24		USB Reg	USB register test	○
25	VIDEO (Display related)	VGA ALL TEST	VGA test	○
26		SVGA RAM TEST	SVGA RAM test	○
27	DISK (FDD, HDD)	FD WT/RD/WP TEST	FD WT, RD WP test	—
28		HDD ALL TEST	Only HDD lead test selected	○
29	UNIQUE (Individual functions)	ECP REGISTER R/W	ECP register R/W test	○
30		EPP REGISTER R/W	EPP register R/W test	○
31		EXT. CMOS R/W TEST	Extension CMOS R/W test	○

	Test function settings	Test condition save/play	Following file command
		Test automatic execute	Test executed on run settings by selecting command
		Error display (Paging style)	Select displayed items Error, Log, Option

5.2. Automatic Test

Test execution

From the menu screen shown below For Celeron models Select and press Enter for DIAG on FD

1. DIAG on FD
2. LAN test
3. SD I/F test
4. Modem test
5. Wireless LAN test (Wireless LAN Model only)
6. CD testQ. Quit

menu screen

Speaker test, VESA test

The speaker test involves listening to music and choosing OK or Not okay. The VESA test involves looking at the display to see if it is satisfactory then choosing OK or Not okay.

Serial loop back test

The Automatic test's initial settings are set so that the serial loop back test will be executed. Connect the serial loop back jig and then perform the test.
(This test is not executed on default mode)

Diagnostics result

If no errors occur. The screen shows the word "Pass" in large letters.
If errors occur. The test is stopped when an error occurs and the error message is displayed.
For explanations of error messages, see Error Messages and Problem Categories (section 4.5).

Quitting the test

At the screen shown below, simultaneously press the ALT and X keys.



Input screen

5.3. Peripheral Test

Test execution

From the menu screen shown below, be sure to choose the following items and press Enter.

2. LAN test
3. SD I/F test
4. Modem test
5. Wireless LAN test
   (Wireless LAN Model only)
6. CD test

1. DIAG on FD
2. LAN test
3. SD I/F test
4. Modem test
5. Wireless LAN test (Wireless LAN Model only)
6. CD testQ. Quit

menu screen

LAN test

This test checks for internal LAN device. Choose LAN test and press Enter.

SD I/F test

This test is the SD Card I/F functions. Choose SD Card I/F test and press Enter.

Modem test

Wireless LAN test

CD test

5.4. Test Selection

Starting up the input menu

1. From the menu screen shown below, choose Quit and press Enter.

> 1. DIAG on FD
> 2. LAN test
> 3. SD I/F test
> 4. Modem test
> 5. Wireless LAN test (Wireless LAN Model only)
> 6. CD testQ. Quit

menu screen

2. When A: \DIAG appears, input "JDG_W4H, EXE" and press Enter.
3. The input screen shown below will appear.
   To choose menu items, hold down "ALT" and press the selection key.

Example:
"ALT" + F brings up the File menu.



Input screen

Order of test flow selection

Input screen startup

↓

1. Reading the test conditions settings file
① Press "ALT" and "F".
② Press "L".
③ Press "ALT" and "O".
④ Press Enter.

> If the test condition settings file is not read, this means the test program is not running correctly

↓

2. setting the test items
① Press "ALT" and "S".
② Press "S".
③ Choose the test item and press Enter.
④ Choose the test whose settings are- to be changed, press "A" for Additional- and "R" for Erase.
All initial VAlues are "0" so set tests other than the necessary ones to "1".
⑤ Press "O" twice to return the menu screen.
⑥ To save the selected list, press "ALT" and "F" at the file menu.

> [Saving selected test items]
> If you change the file name when saving the file in step⑥, you can create test condition settings for custom test items.
> Example:
> CF-W4. ＊＊＊→ TEST1. ＊＊＊

↓

■Starting the test
・Press "ALT" and "R".
・Press "R".
This will start the test.

↓

End of test

5.5. Error Messages and Troubleshooting

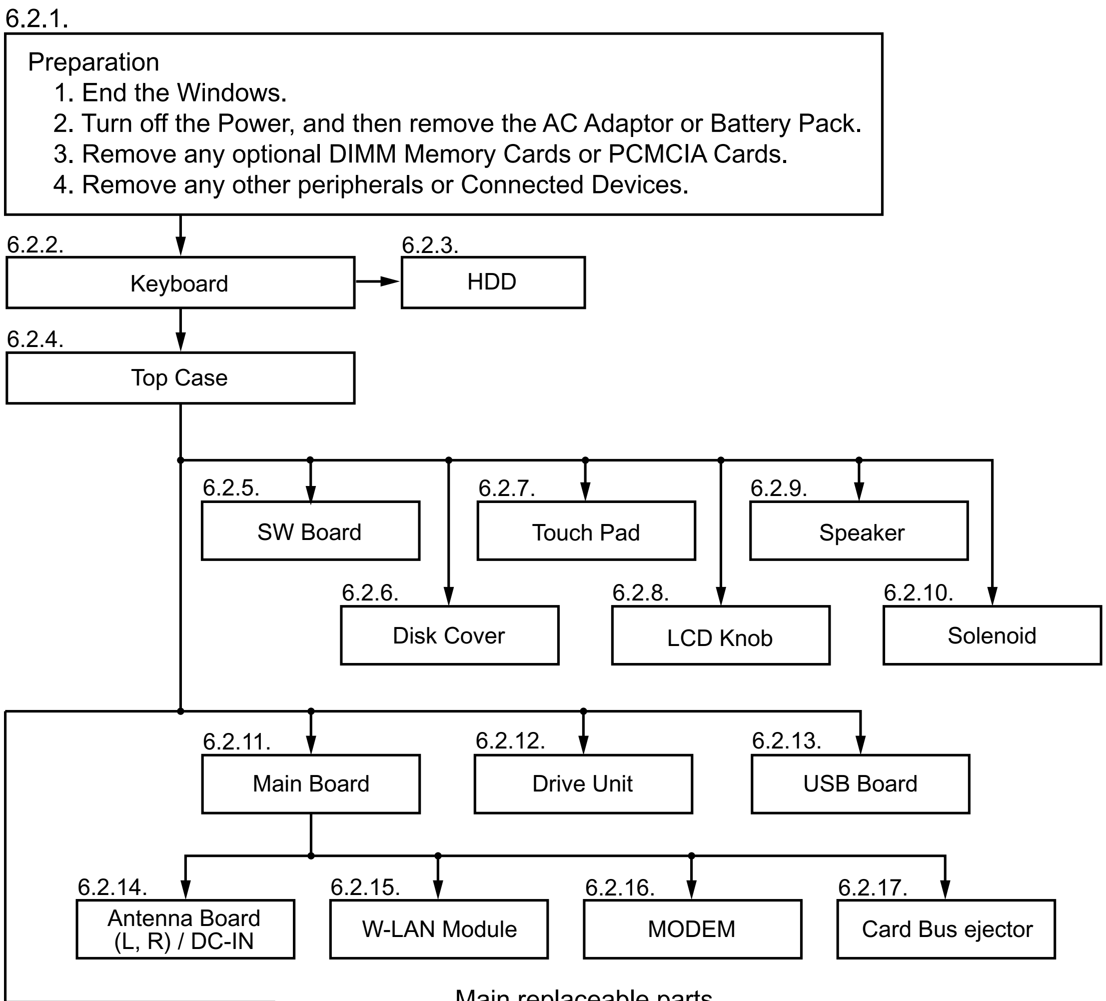
The table below explains the parts that may be faulty or damaged should an error message occur while performing the various test items of the self diagnostics program.

	Test classification	Screen display test items	Contents	Possible damaged or faulty part
1	CPU	A20 GATE TEST	Address 20 line	Main board
2	(CPU related)	CACHE ON/OFF TEST	Cache memory on/off	
3		NPU OPERAND TEST	Floating point processor function	
4	RAM (Memory related)	RAM STANDARD	Memory standard	Main board
5	CONTROL	DMA PAGE REG TEST	DMA page register	Main board
6	(Control ICs on the	DMA REGISTER TEST	DAM register	
7	main board, etc.)	DMAC Transfer TEST	DAM transfer test	
8		PIC HALT INSTRUCTION TEST	Interrupt controller	
9		PIC REGISTER TEST	Interrupt controller	
10		RTC CMOS RAM TEST	Real time clock CMOS	
11		RTC 12/24 HOUR TEST	Real time clock test	
12		SPEAKER TEST	Speaker	
13		PIT CH0 TEST	Interrupt timer CH0	
14		PIT CH1 TEST	Interrupt timer CH1	
15		PIT CH2 TEST	Interrupt timer CH2	
16	IO	KEYBOARD REG. TEST	Keyboard	Main board
17	(Input-output)	PS/2 MOUSE REG.	Mouse	Main board
18	COMMUNICATION	SERIAL WRAP TEST	Serial loop back (jig required)	Main board
19		SERIAL ALL INTERNAL TEST	Serial port	
20		PARALLEL REGISTER R/W	Parallel register	
21	AUX	PCIC ALL TEST	PCIC	Main board
	(Auxiliary functions)	Card Bus REG	Card Bus port	Main board
		USB REG	USB port	Main board
22	VIDEO	VGA ALL TEST	VGA	LCD, main board, cable
23	(Display related)	SVGA RAM TEST	SVGA RAM	Main board
24		VESA MODE TEST	VESA mode	LCD, main board, cable, connector
25	DISK	FD WT/RD/WP TEST	FD write/read/write protection	FD, main board, cable
26	(FDD/HDD)	HDD ALL TEST	Only HDD lead selected	HDD, main board, cable, connector
27	UNIQUE	ECP REGISTER R/W	Parallel port	Main board, cable, connector
28	(Individual	EPP REGISTER R/W	Parallel port	Main board, cable, connector
29	functions)	EXT. CMOS R/W TEST	Extension CMOS R/W test	Main board

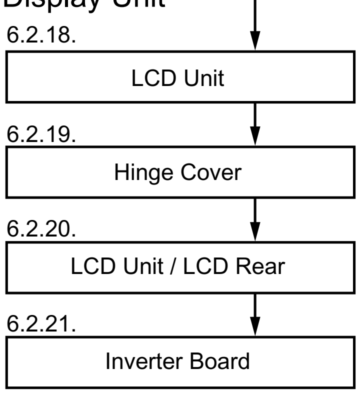
6 Disassembly instructions

6.1. Disassembly Flow Chart

●Main Unit



●Display Unit



Main replaceable parts

6.2.1.	･Battery Pack ･DIMM Cover ･Side Cover
6.2.2.	･Keyboard
6.2.3.	･HDD ･HDD FFC ･HDD Cover
6.2.4.	･Top Case
6.2.5.	･SW Board ･Disk Cover Open Knob
6.2.6.	･Disk Cover
6.2.7.	･Touch Pad ･Touch Pad Knob ･Touch Pad Ring ･PAD FFC
6.2.8.	･LCD Knob
6.2.9.	･Speaker
6.2.10.	･Solenoid
6.2.11.	･Main Board
6.2.12.	･Drive Unit
6.2.13.	･USB Board
6.2.14.	･Antenna Board ･Antenna Cover(L, R)
6.2.15.	･W - LAN Module ･Heat Spreader
6.2.16.	･MODEM
6.2.17.	･Card Bus ejector
6.2.18.	･LCD Unit
6.2.19.	･Hinge Cover ･Hinge (L, R)
6.2.20.	･LCD Unit ･LCD Rear ･LCD Front
6.2.21.	･Inverter Board ･LCD Cable

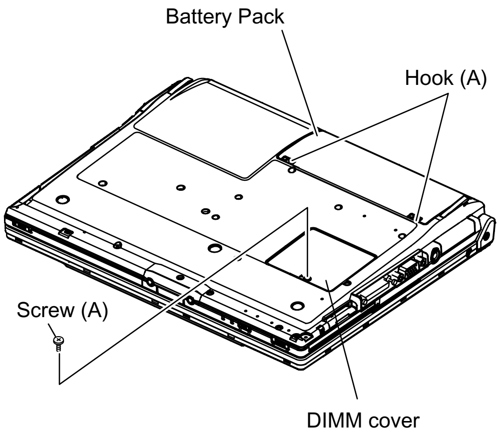
6.2. Disassembly

6.2.1. Preparation

Attention:

Before disassembly, be sure to perform the following steps.

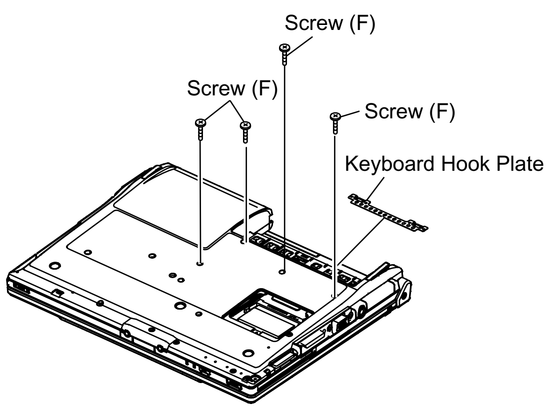
1. End the Windows.
2. Turn off the power and then remove the AC Adaptor.
3. Slide the Hooks (A) and then remove the Battery Pack.
4. Remove the Screw (A) and then remove the DIMM cover. (Remove if the DIMM memory is equipped with)
   Screw(A):XSB2+4FNL(N17)



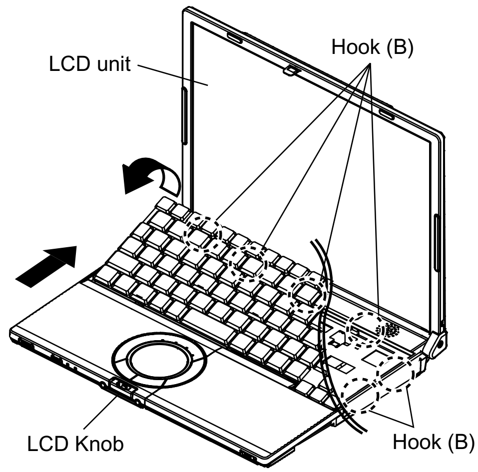
6.2.2. Remove the Keyboard

Preparation : perform the section 6.2.1. first.

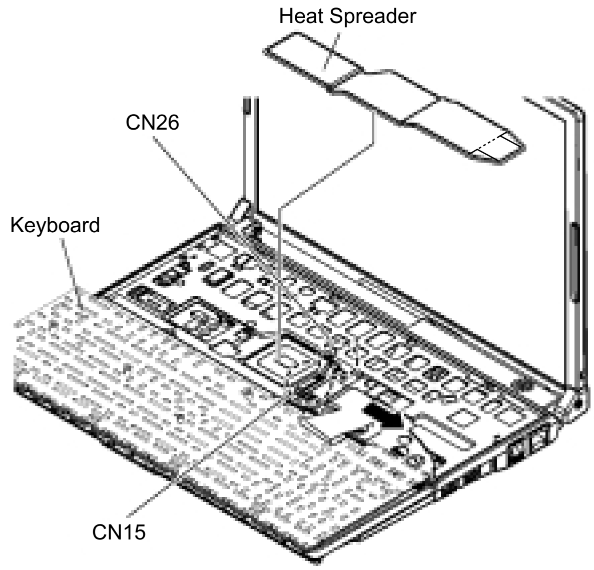
1. Remove the 4 Screws (F).
   Screw(F):DXQT2+E12FNL(N11)
2. Remove the Keyboard Hook Plate and then remove the Hook of back side of Keyboard with small screwdriver.



3. The LCD unit is opened up to about 90° by operating the LCD Knob.
   Remove the 6 Hooks (B).
4. Open the Keyboard from LCD side and then turn it inside out on the Top Case.



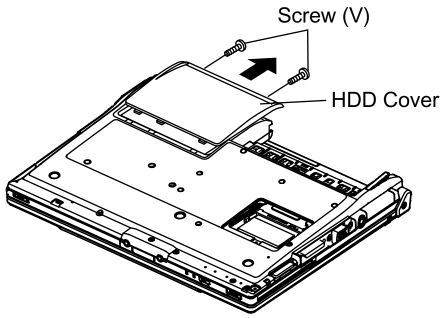
5. Remove the Heat Spreader from buttom of the Keyboard.
6. Remove the Keyboard FFC from the Connector (CN15), (CN26) and then remove the Keyboard.



6.2.3. Remove the HDD

Preparation : perform the section 6.2.1. 6.2.2. first.

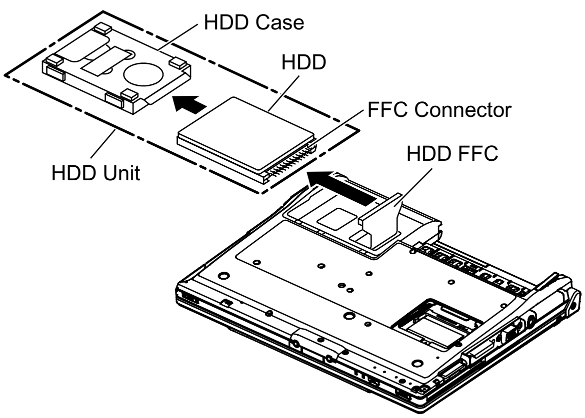
1. Remove the 2 Screws (V).
   Screw(V):DFHE5025XA(N1)
2. The slide is done in the direction of the arrow and the HDD Cover is removed.



3. Lift up the HDD Unit and remove the FFC Connector and then remove the HDD Unit.
4. HDD is taken out of the HDD Case.

   Note:

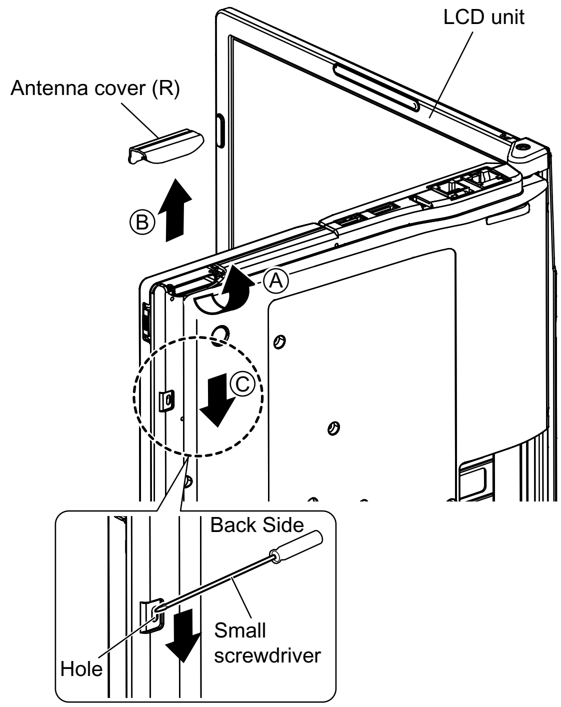
   Please do not bend pins of the HDD Connector, at the time of removing HDD and FFC Connector.



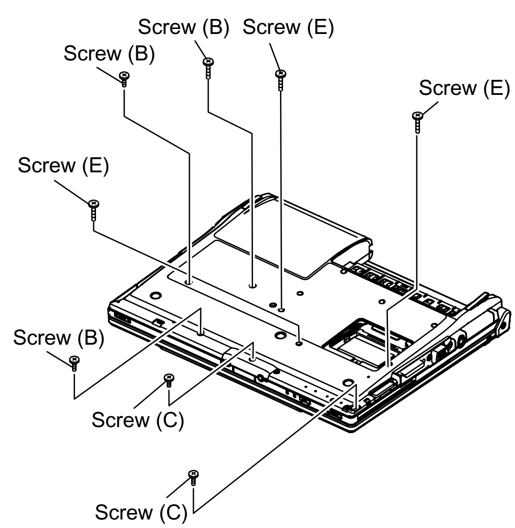
6.2.4. Remove the Top Case

Preparation : perform the section 6.2.1. , 6.2.2. first.

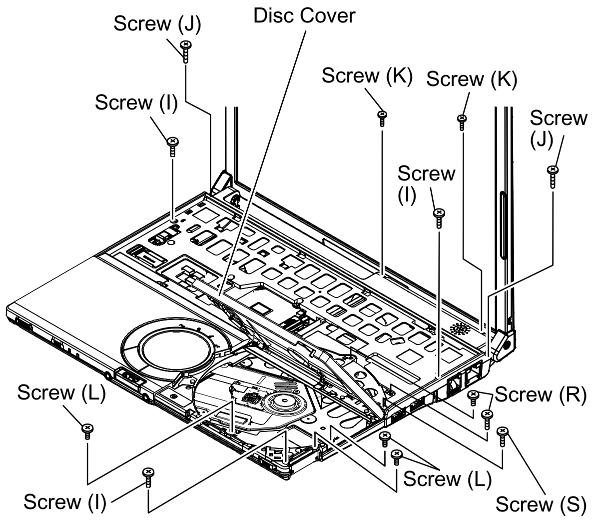
1. Insert a small screwdriver into the hole and slide the look in the direction shown by arrow (C) to open the Disc Cover.
2. The Anttena Cover (R) is rotated from the Bottom Case side in the direction of arrow (A) and the Antenna Cover (R) removed in the direction of arrow (B).



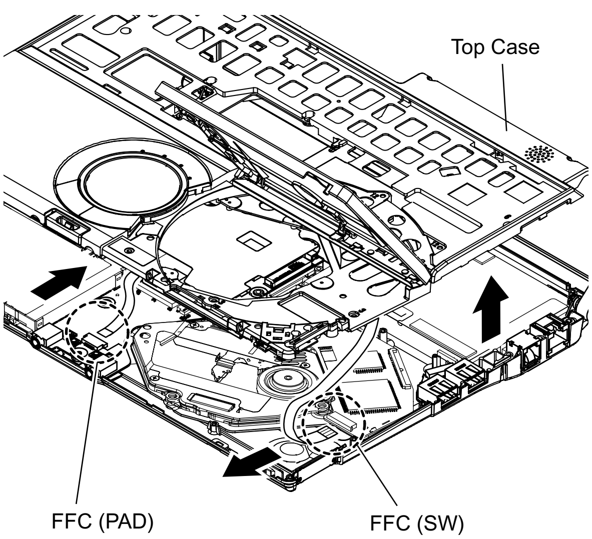
3. Remove the 3 Screws (B), 2 Screws (C) and 3 Screws (E) from the Bottom Case.
   Screw(B):DRHM0092ZA(N4)
   Screw(C):DXHM0057ZA(N7)
   Screw(E):DXHM0039ZA(N6)



4. Remove the 3 Screws (I), 2 Screws (J), 2 Screws (K) and 2 Screws (L) from the Top Case.
   Screw(I):DXQT2+E6FNL(N13)
   Screw(J):DXQT26+D8FCL(N16)
   Screw(K):DXQT2+E6FCL(N12)
   Screw(L):DFHE5025XA(N1)
   Screw(R):DXQT2+E12FNL(N11)
   Screw(S):DXQT2+E6FNL(N13)



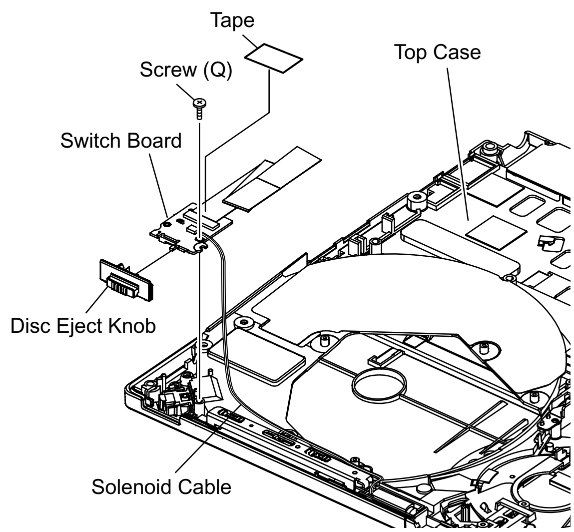
5. Lift up the Top Case, remove the Pad FFC and then remove the Top Case.



6.2.5. Remove the SW Board

Preparation : perform the section 6.2.1. to 6.2.4. first.

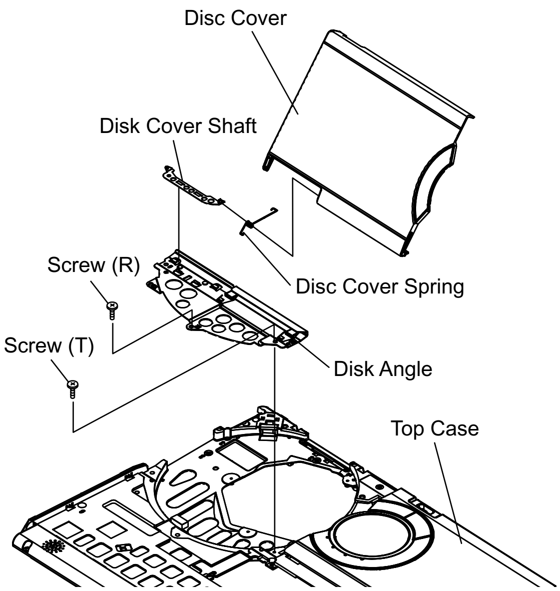
1. Peel off the Tape.
2. Remove the Solenoid Cable.
3. Remove the 1 Screw (Q) and then remove the SW Board.
   Screw(Q):DXHM0057ZA (N7)
   Note:
   Note it that the Disc Eject Knob comes off at the same time.



6.2.6. Remove the Disc Cover

Preparation : perform the section 6.2.1. to 6.2.4. first.

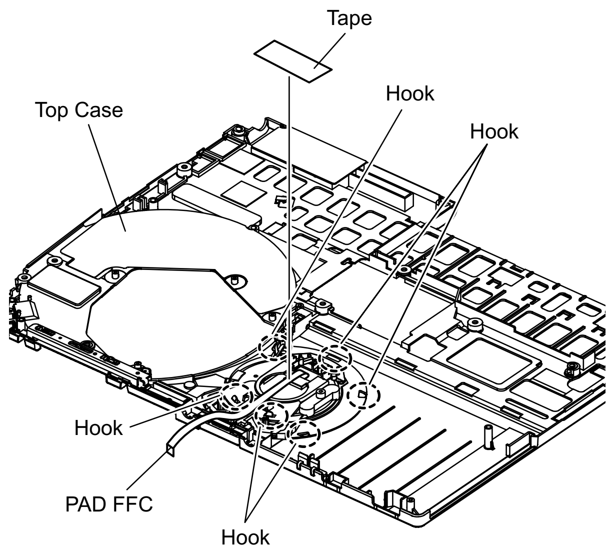
1. Remove the 2 Screw (R), 1 Screw (S) and 1 Screw (T) of the Disk Angle.
   Screw(T):DXHM0057(N7)
2. Slide the Disc Cover to the Disc Cover Shaft and remove the Cover.
3. The Disk Cover Shaft is pulled out while sliding and removed it from the Disk Angle in the direction of the Touch Pad.



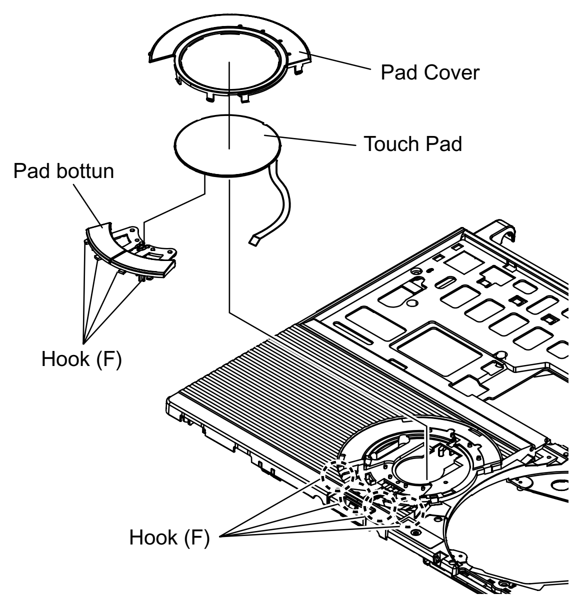
6.2.7. Remove the Touch Pad

Preparation : perform the section 6.2.1. to 6.2.4. first.

1. Peel off the Tape.
2. The 6 Hooks of the Pad Cover are depressed in the direction of the center of the Touch Pad by using the small screwdriver.



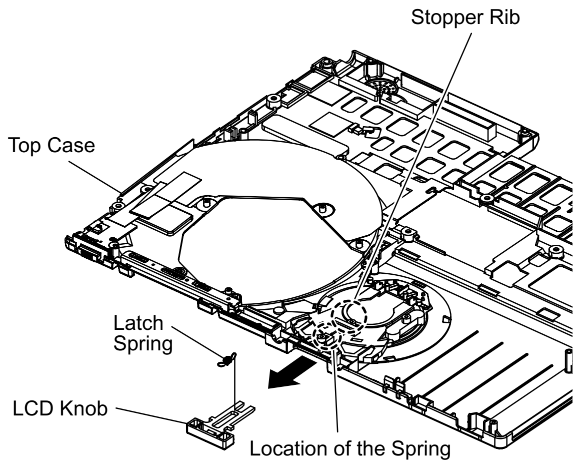
3. Remove the Hooks of the Toutch Pad and the Pad Button, and remove the Touch Pad.



6.2.8. Remove the LCD Knob

Preparation : perform the section 6.2.1. to 6.2.4. first.

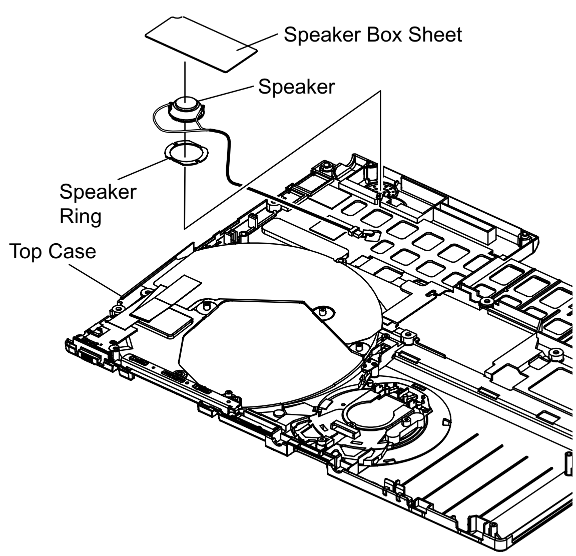
1. Remove the Spring from the Top Case.
2. Remove the Hook of LCD Knob from the Stopper Rib of the Top Case and then the LCD Knob is removed.



6.2.9. Remove the Speaker

Preparation : perform the section 6.2.1. to 6.2.4. first.

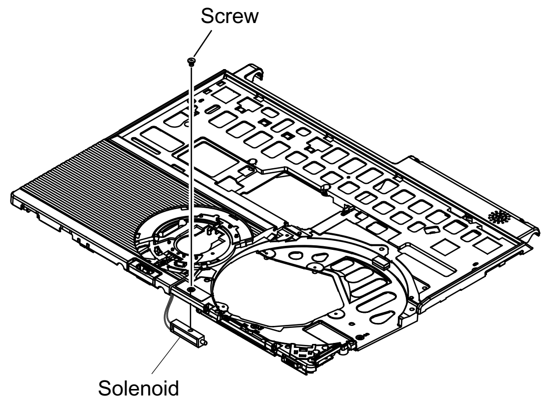
1. Peel off the Speaker Box Sheet.
2. Peel off the tape on the Speaker and Speaker Ring and then remove the Speaker.



6.2.10. Remove the Solenoid

Preparation : perform the section 6.2.1. to 6.2.4. first.

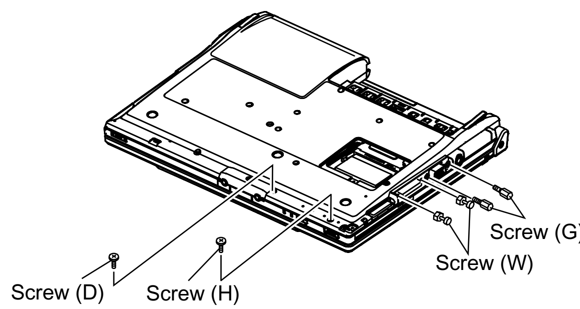
1. Remove the 1 Screw (Z) and then remove the Solenoid.
   Screw(Z):DXQT2+F2FNL(N14)



6.2.11. Remove the Main Board

Preparation : perform the section 6.2.1. to 6.2.4. first.

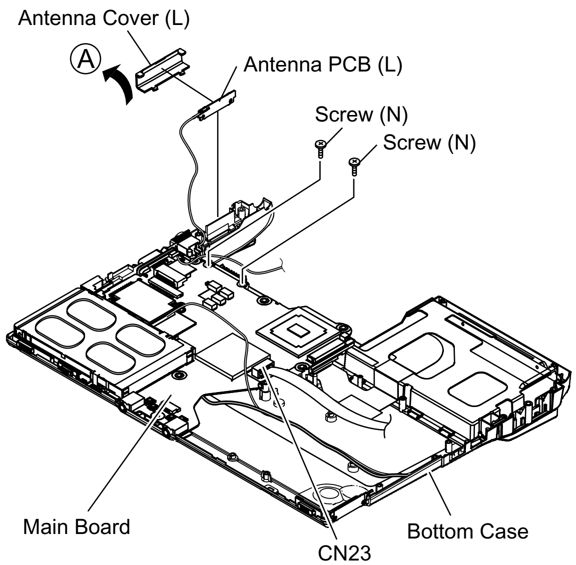
1. Remove the 1 Screw (D), (H) and 2 screws.
   Screw(D):DXQT2+E10FNL(N10)
   Screw(H):DXQT2+D4FNL(N9)
   Screw(G):DFHE5035ZB(N2)
   Screw(W):K1YE50000022(N500)



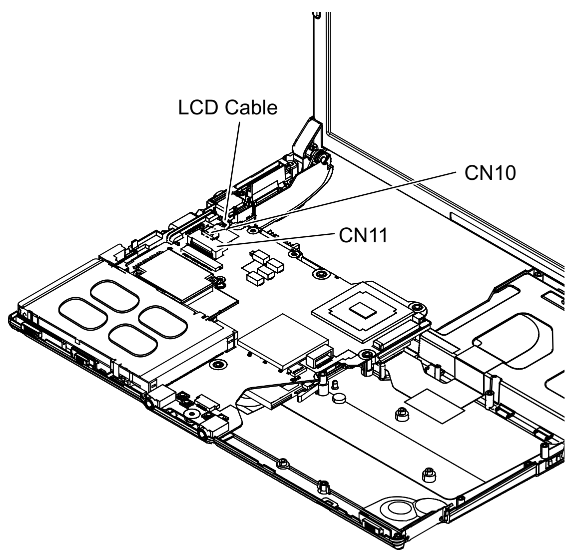
2. Remove the 2 Screws (N).
   Screw(N):DXQT2+E6FNL(N13)
3. Remove the Connector (CN23)

4. The Antenna Cover (L) is inclined in the direction of arrow A and remove it.

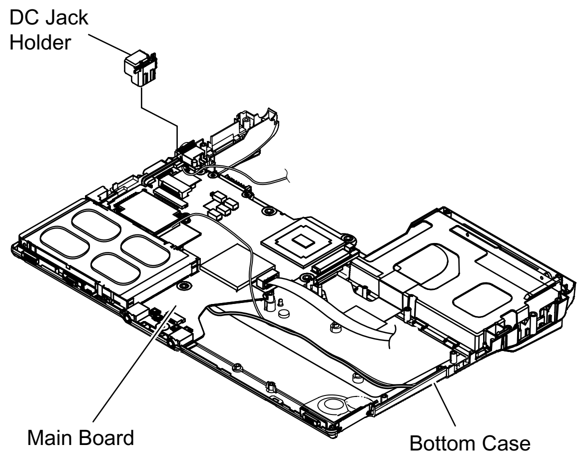
   Remove the Antenna Cover (L) from the Top Case.



5. Remove the Connectors (CN10) and (CN11) of LCD Cable.



6. Remove the DC-IN Jack Holder.



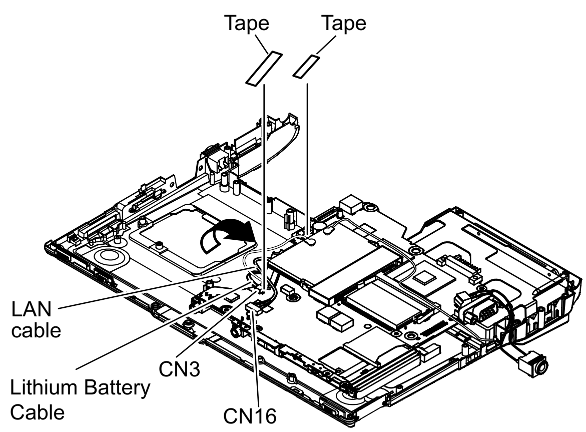
7. Returns the Main Board on the reverse.

   Peel the Tape of the Drive FFC and remove the FFC.

8. Remove the Connector (CN3) and the Connector (CN16) of LAN Cable.

   Peel off the Tape of HDD FFC and remove the FFC.

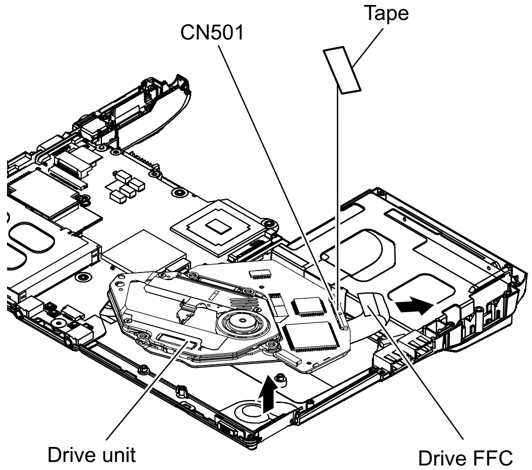
   Remove the Main Board.



6.2.12. Remove the Drive Unit

Preparation : perform the section 6.2.1. to 6.2.4. first.

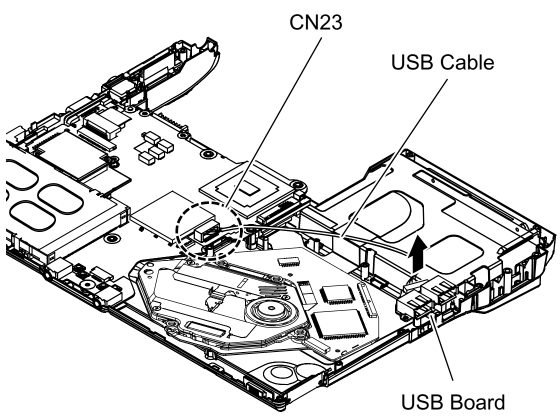
1. Peel off the Tape from the Connector.
2. Remove the Drive FFC from the Connector (CN501) and remove out the Drive Unit.



6.2.13. Remove the USB Board

Preparation : perform the section 6.2.1. to 6.2.4. first.

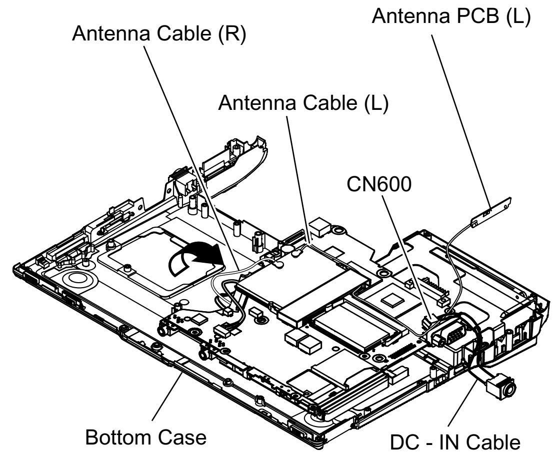
1. Remove the Connector (CN23) on the Main Board.
2. Remove the USB Board from the Bottom Case.



6.2.14. Remove the Antenna Board(L,R)

Preparation : perform the section 6.2.1. to 6.2.11. first.

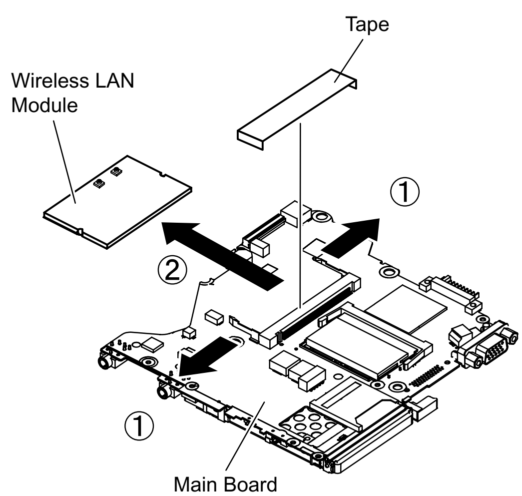
1. Remove the Antenna Cable (L, R) on the Wireless LAN Module and then remove the Antenna Board from the Bottom Case.
2. Remove the DC-IN Cable (CN600) from the Main Board.



6.2.15. Remove the Wireless LAN Module

Preparation : perform the section 6.2.1. to 6.2.4. and 6.2.14. first.

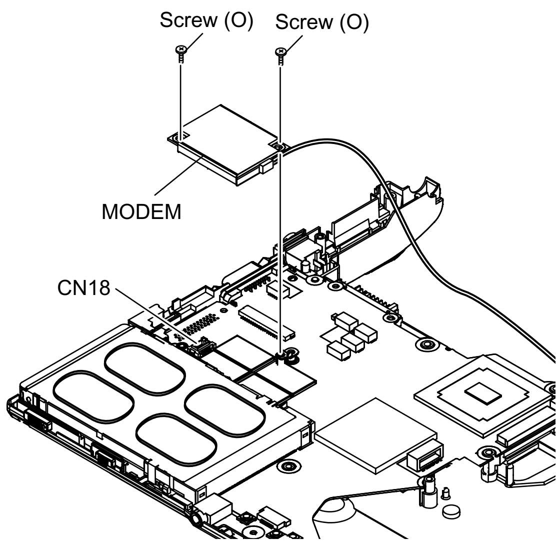
1. Peel off the Tape on the Wireless LAN Module.
2. Open the Wireless LAN Module maintenance arm and remove the Wireless LAN Module.



6.2.16. Remove the MODEM

Preparation : perform the section 6.2.1. to 6.2.4. and 6.2.11. first.

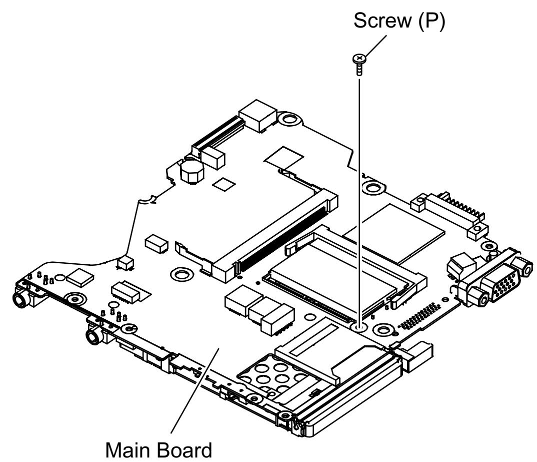
1. Remove the 2 Screws (O).
   Screw(O):DXQT2+D25FNL(N8)
2. Remove the MODEM to the vertical direction from Connector (CN8) on the Main Board.



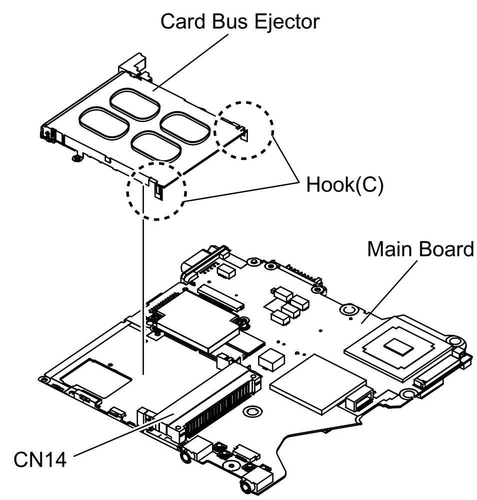
6.2.17. Remove the Card Bus Ejector

Preparation : perform the section 6.2.1. to 6.2.3. and 6.2.11. first.

1. Remove the 1 Screw (P) from connected side of Main Board.
   Screw(P):DFHE5025XA(N1)



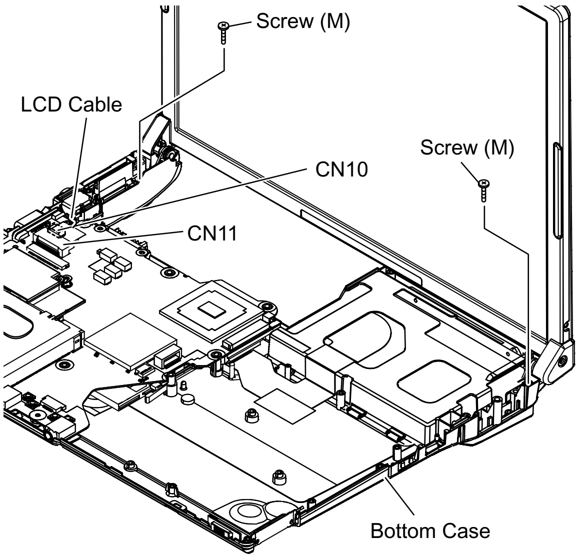
2. Return it on the revers to Card Bus Ejector side.
3. Remove the 2 hooks (C) of the Card Bus Ejector from the Connector (CN14) and the Card Bus Ejector is removed.



6.2.18. Remove the LCD Unit

Preparation : perform the section 6.2.1. to 6.2.4. first.

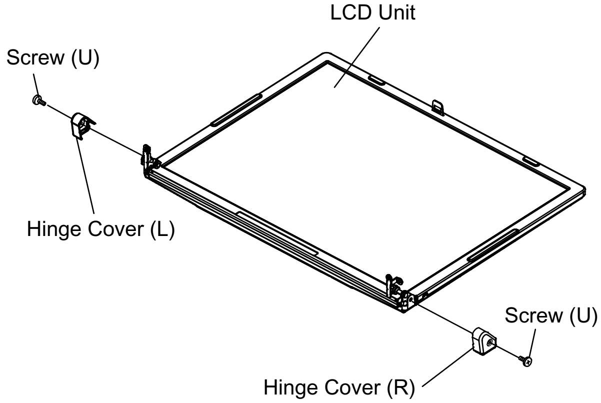
1. Remove the 2 Screws (M)
   Screw(M):DXQT26+D5FNL(N15)
2. Remove the LCD Cable from the Connectors (CN10) and (CN11) on the Main Board and then remove the LCD Unit.



6.2.19. Remove the Hinge Cover

Preparation : perform the section 6.2.1. to 6.2.4. and 6.2.18. first.

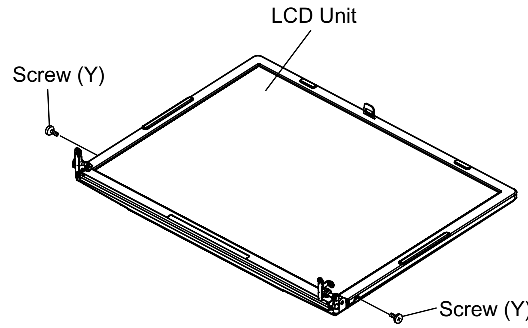
1. Remove the 2 Screws(U) and the Hinge Cover(L,R).
   Screw(U):DRHM0074ZA(N3)



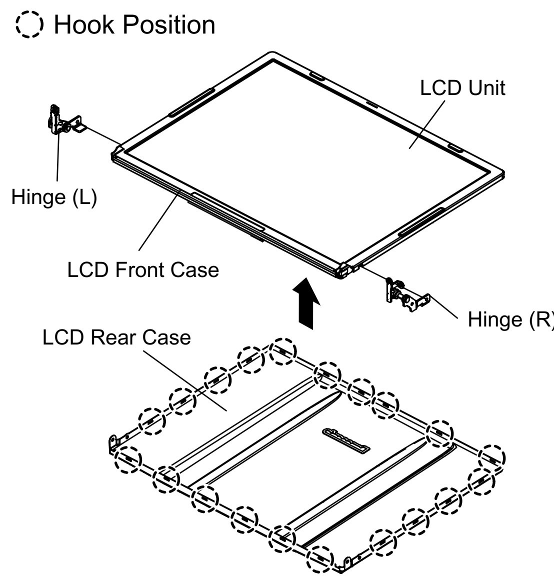
6.2.20. Remove the LCD Unit and the LCD Rear

Preparation : perform the section 6.2.1. to 6.2.4. and 6.2.18. to 6.2.19. first.

1. Remove the 2 Screws (Y).
   Screw(Y):DRHM0074ZA(N3)



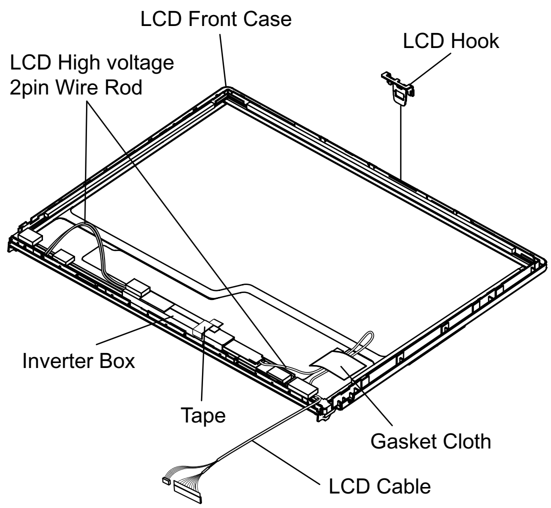
2. The LCD Front Case and the combination parts of LCD Rear Case are separated.
   (Combination parts are 6 the top and bottom places for each, 4 right and left places for each)
3. Remove the Hinge (L, R).



6.2.21. Remove the Inverter Board

Preparation : perform the section 6.2.1. to 6.2.4. and 6.2.18. to 6.2.20. first.

1. Remove the LCD Cable from the Inverter.
2. Peel off the Tape for fixation from Inverter Case.
3. Remove the Inverter with the Inverter Case.



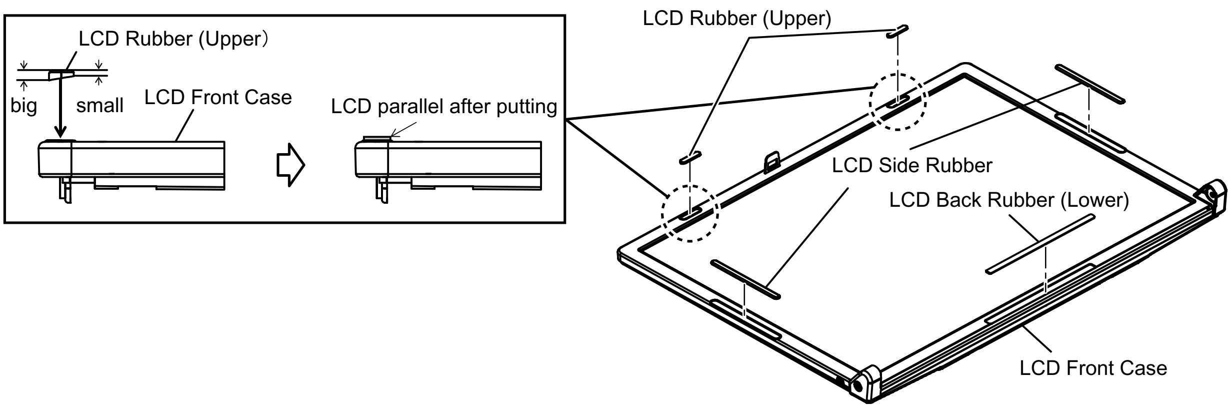
6.3. Reassembly instructions

6.3.1. Attention when CF-W4G series is repaired

- Please execute writing BIOS ID when you exchange the Main Board.
- Parts (Sheet and rubber) etc. related various the Conductive Cloth and Heat Spreader cannot be recycled. Use new parts.

6.3.2. Assembly knowhow of part LCD

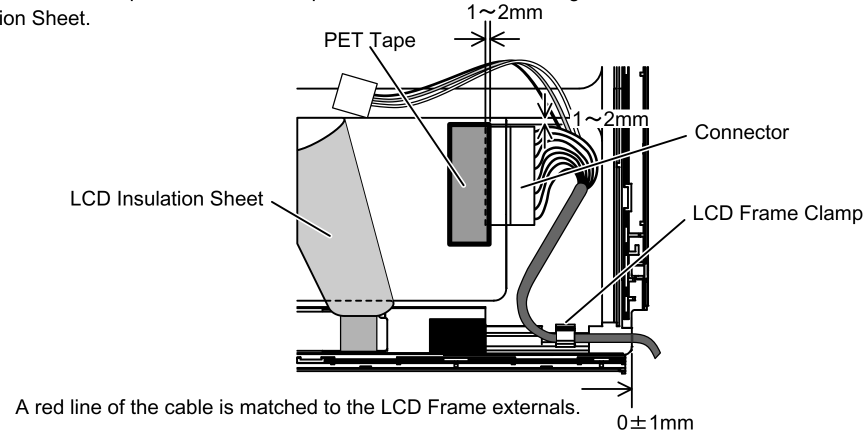
■ LCD Rubber, LCD side Rubber and LCD backing Rubber's putting



■ LCD Cable processing

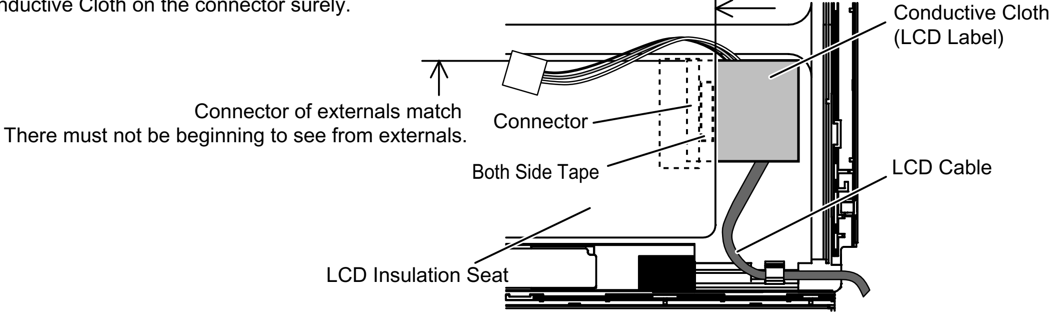
●Clamping processing of LCD Cable, LCD Connector connection and putting of PET Tape of cable

- The LCD Insulation Sheet is peeled off and after processes as shown in the figure below, Put the Insulation Sheet.



●Putting of The Conductive Cloth

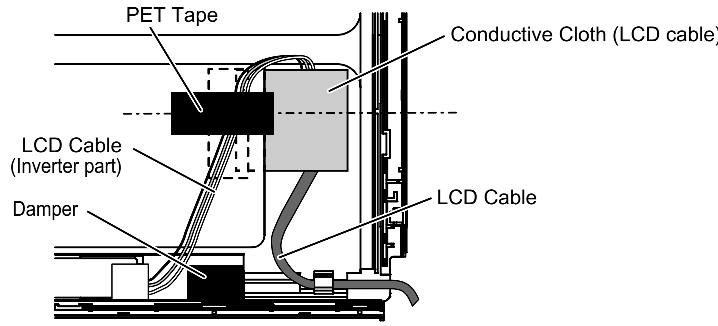
- The Conductive Cloth is put and after putting, a both side tape is put.
- Process the part in the signal line of the LCD Cable in the Conductive Cloth.
- Put the Conductive Cloth on the connector surely.



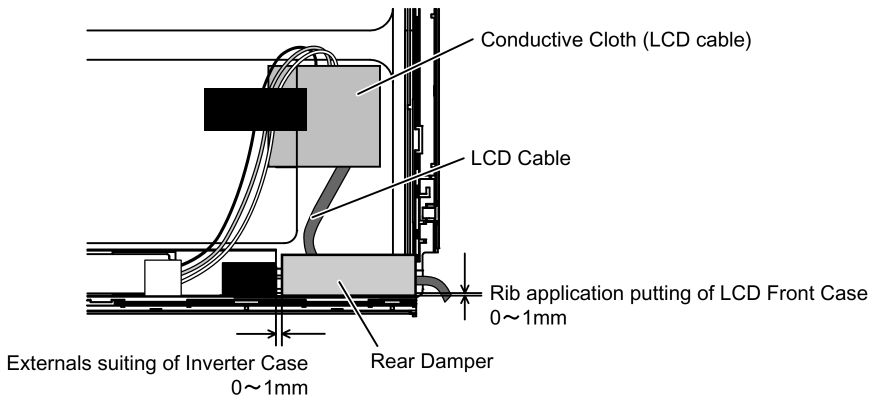
●Putting of PET Sheet

・The cable must not run aground on the damper.

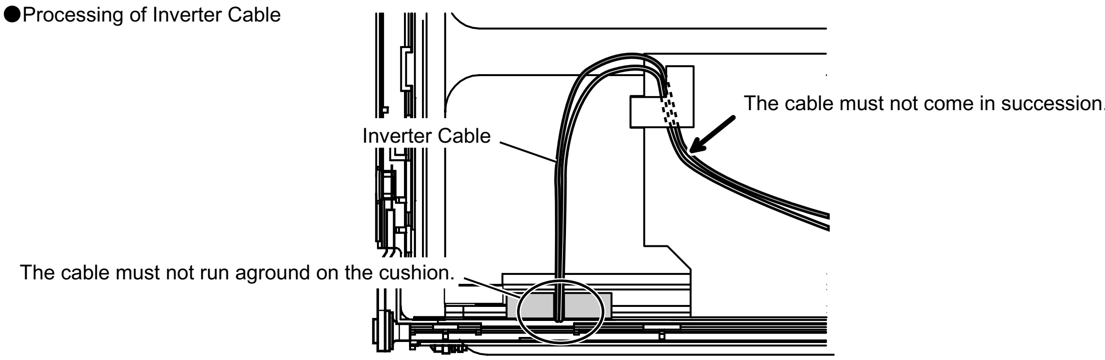
・Along the LCD Module and put the LCD Cable (Inverter part) with the PET Tape.



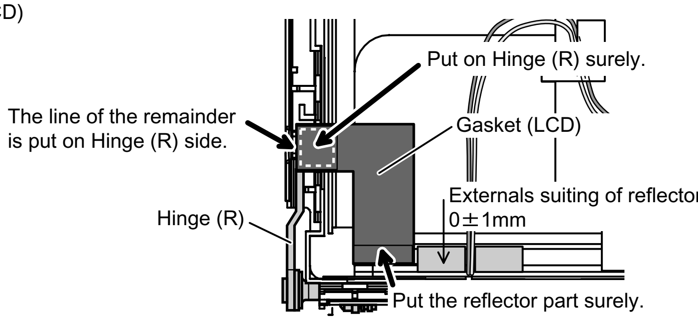
●Putting of Rear Damper



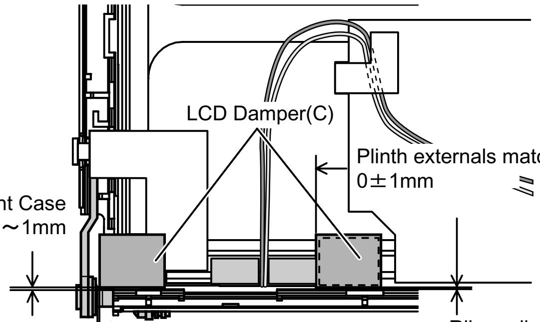
●Processing of Inverter Cable



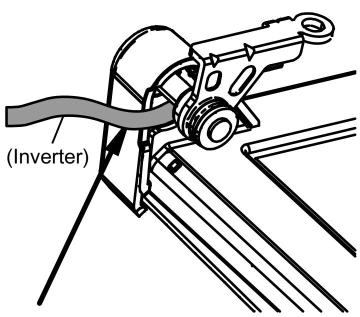
●Putting of Gasket (LCD)



●Putting of LCD Damper(C)



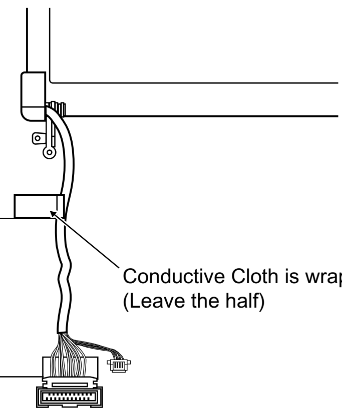
●Drawing out specification of LCD Cable



The Cable is processed under the shaft .

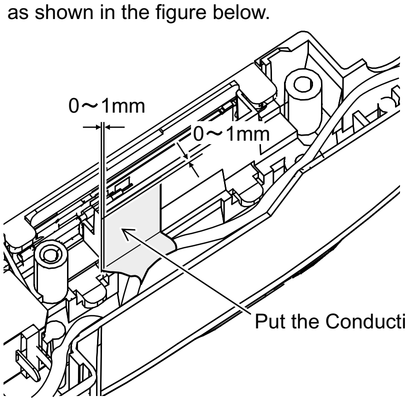
Note:It is confirmed that the cable does not narrow between cabinets.

●Putting of Conductive Cloth of LCD Cable

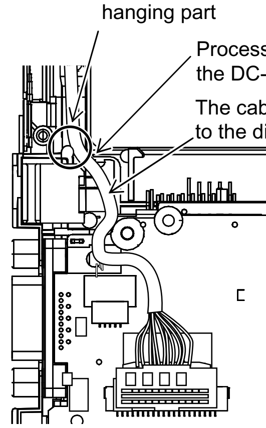


●LCD cable processing 1

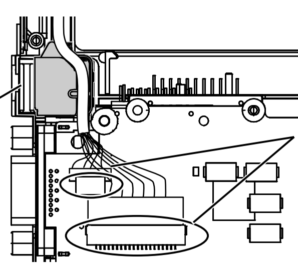
Process the LCD Cable (2) such as DC-IN Jack Holders, after process the Conductive Cloth of the LCD cable puts as shown in the figure below.



●LCD Cable processing 2

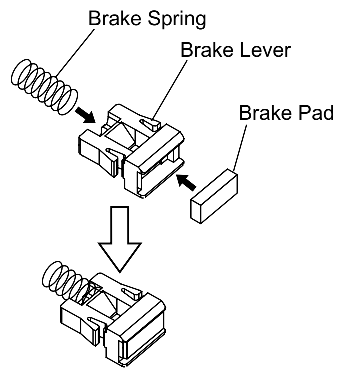


●Connector connection specification



6.3.3. Assembly of Brake Lever

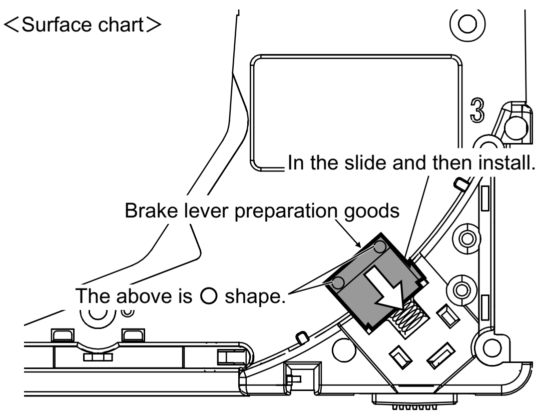
■ Brake Lever completion chart



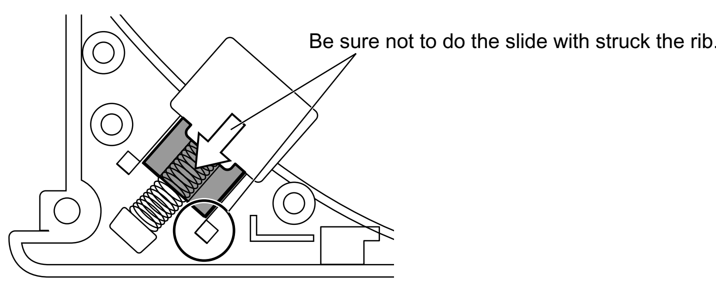
・Do not touch the bonding side when the brake pad is affixed.

■ Brake Lever built-in figure

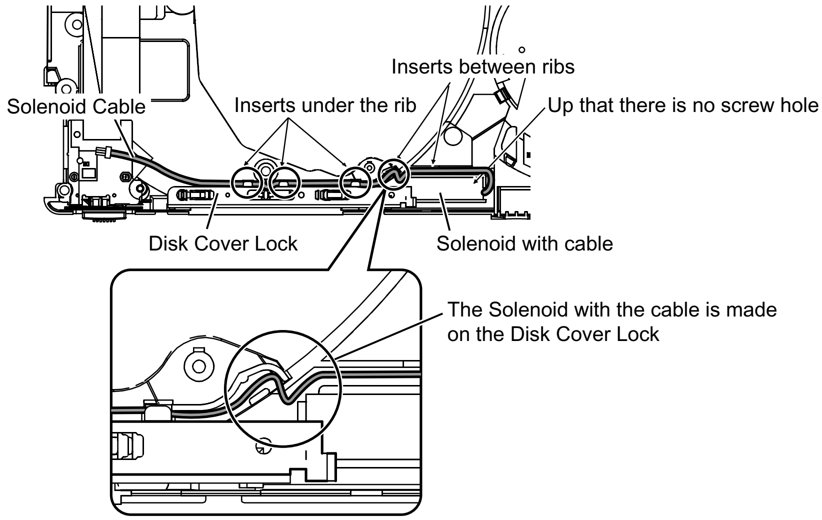
<Surface chart>



<The back chart>

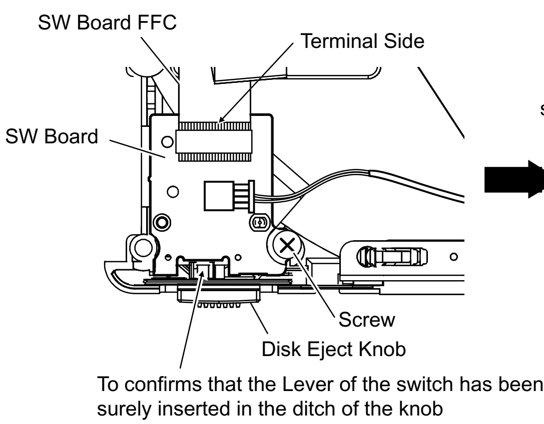


6.3.4. Solenoid Wire Rod processing

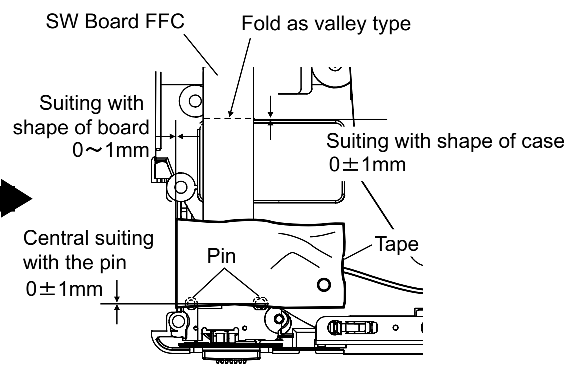


6.3.5. Switch Board assembly specification

■ Connection to SW Board

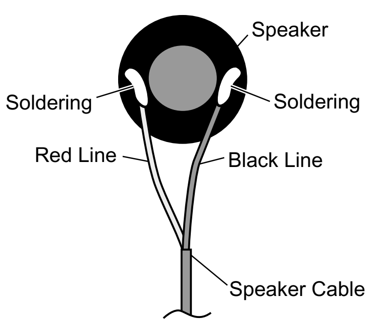


■ Affixation of PET Tape



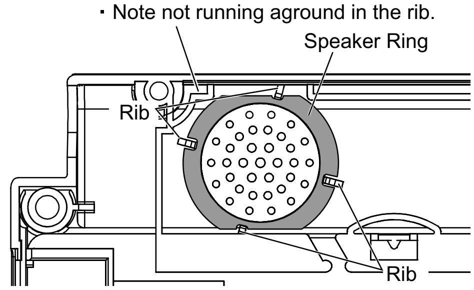
6.3.6. Speaker installation and Line processing

■ Soldering of Speaker Cable



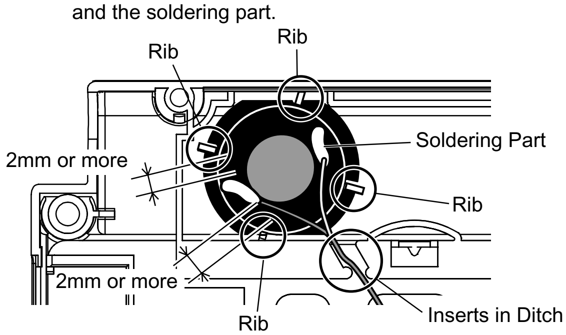
■ Affixation of Speaker Ring

・Put it according to the shape of the rib.
・Note not running aground in the rib.

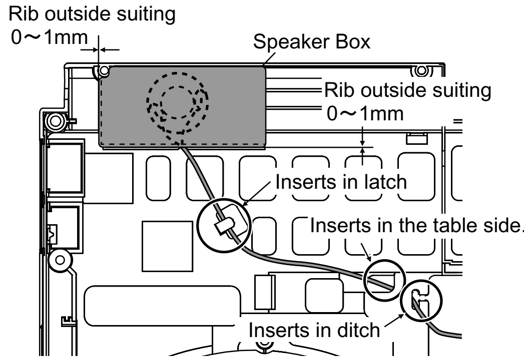


■ Speaker installation

・Secure 2mm or more for the space in each rib and the soldering part.



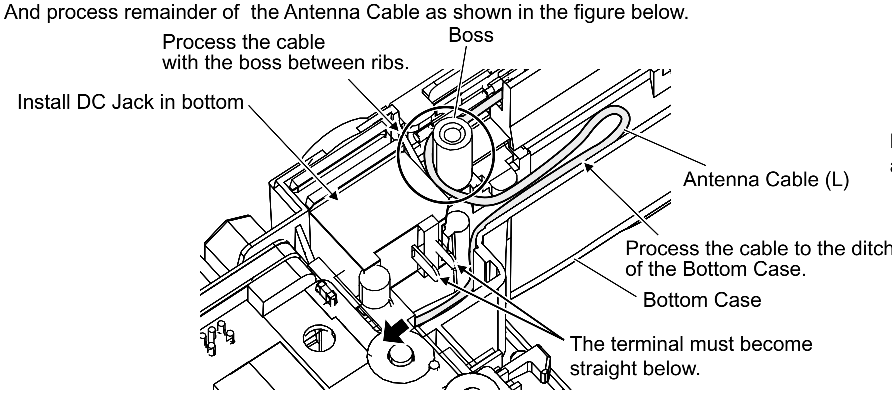
■ Processing of Speaker Cable

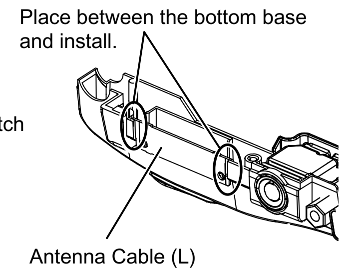


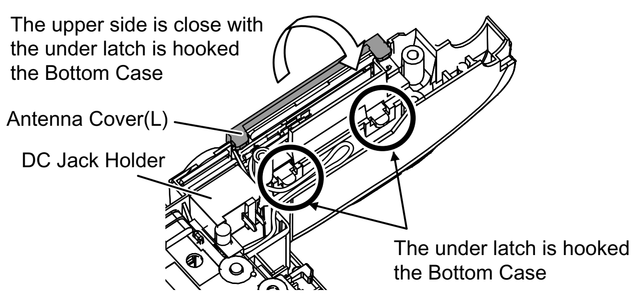
6.3.7. Assembly of Antenna Board Part

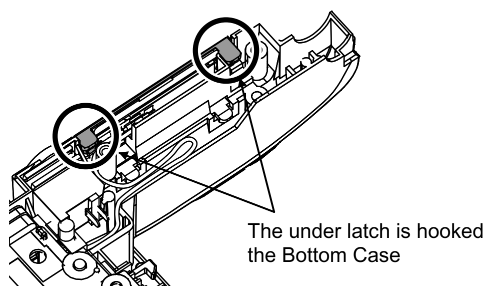
■ Line processing of Antenna Cable (L)

・Install the Antenna Board in the Bottom Case.
And process remainder of the Antenna Cable as shown in the figure below.



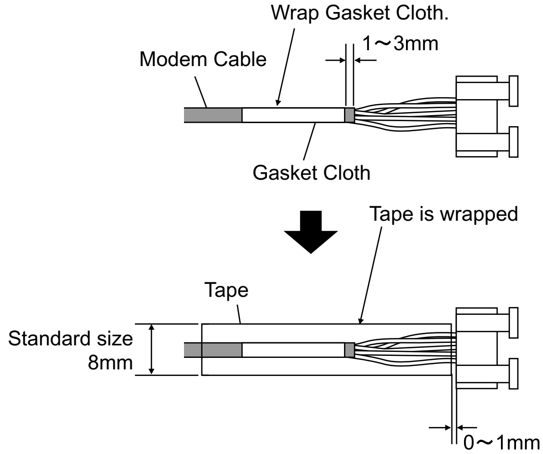


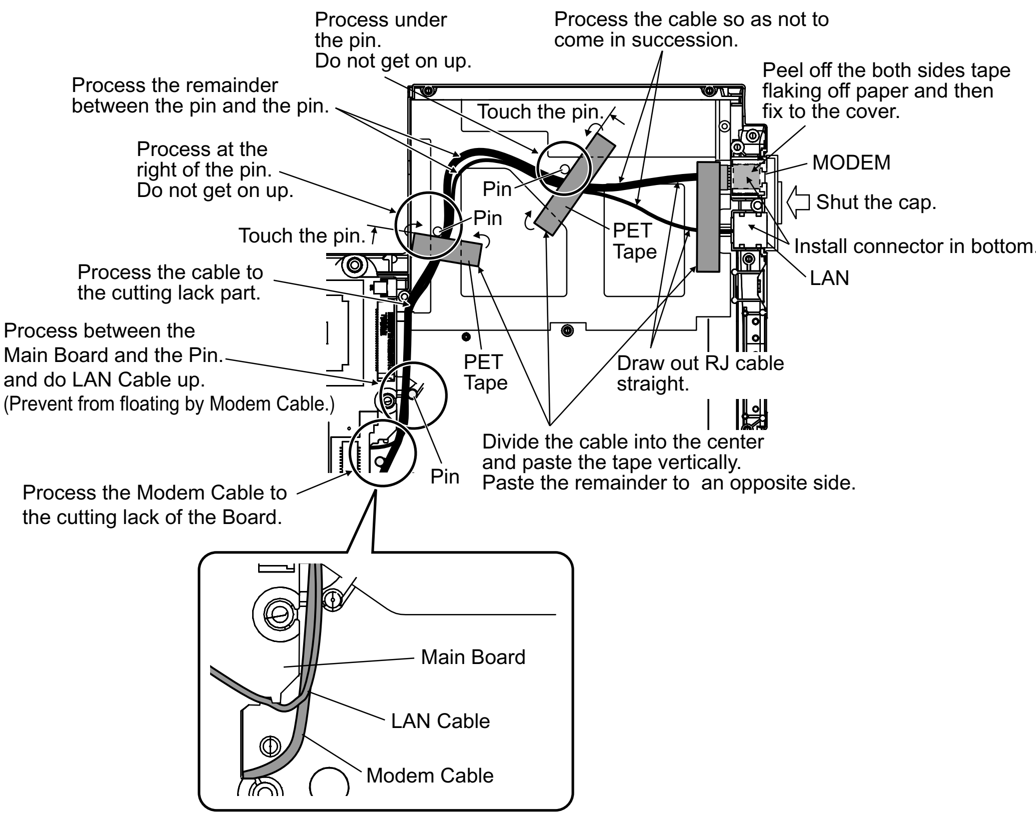




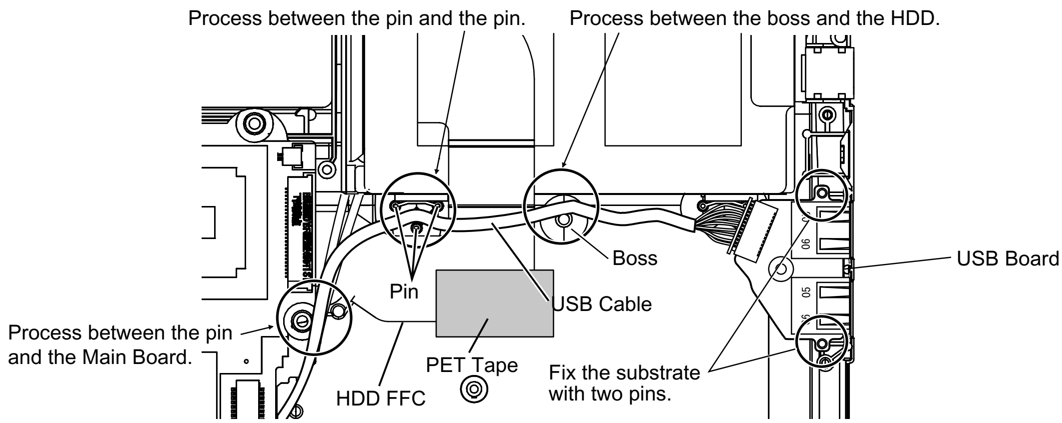
6.3.8. MODEM Cable, Rib and LAN Cable processing

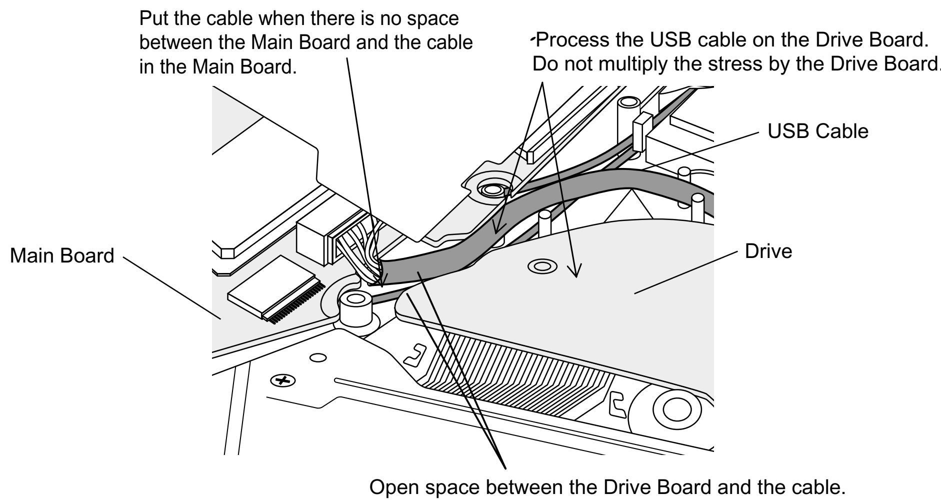
■ Conductive Cloth affixation of Modem Cable



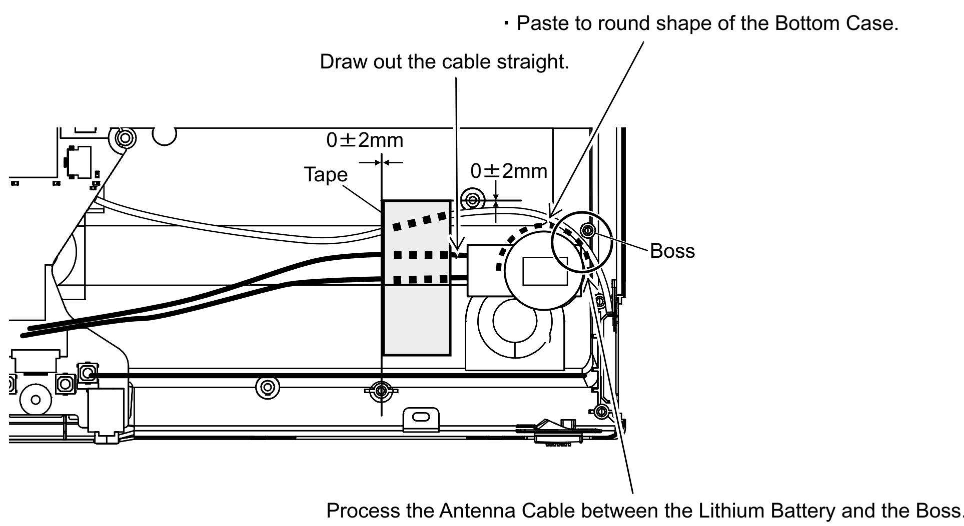


6.3.9. USB Cable processing



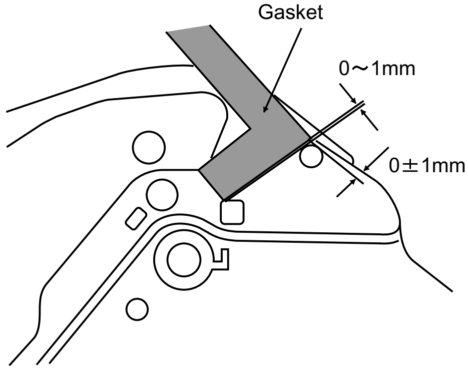


6.3.10. Wire Rod processing of Lithium Battery

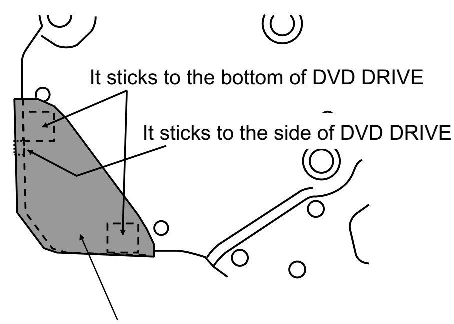


6.3.11. Affixation of HDD Gasket

● Gasket Cloth is pasted



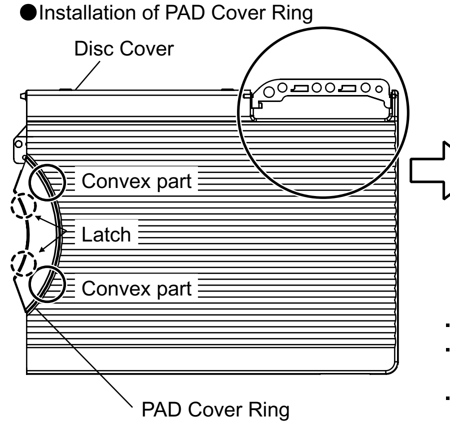
● DVD Heat Insulation Pack is pasted



6.3.12. Assembly of Disk Cover

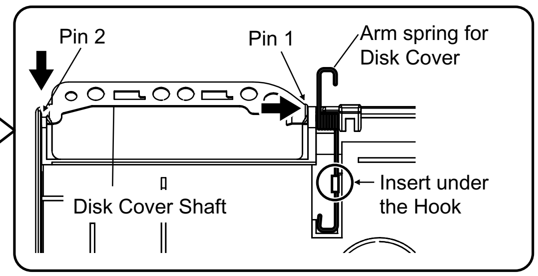
■ Assembly of Disk Cover

●Installation of PAD Cover Ring



・Insert two Convex parts in the hole of Disc Cover.
・Hang two latch on Disc Cover.

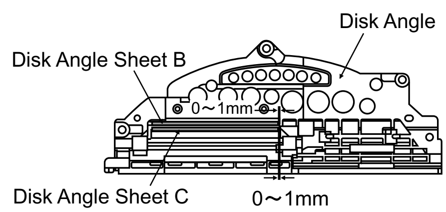
●Installation of Disk Cover Shaft



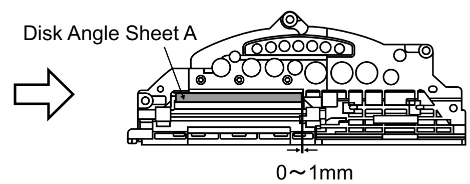
・Insert the Arm Spring for the Disk Cover in the Disk Cover.
・Insert pin 1 of the Disk Cover Shaft through the inside diameter of the Spring.
・Pin 2 of the Disk Cover Shaft must be slided, and insert in the hole of the Disk Cover.

■ Installation of various dampers on Disk Angle

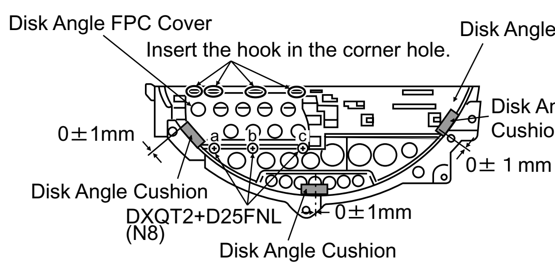
●Disk Angle Sheet B/C is pasted.



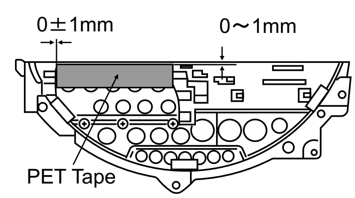
●Disk Angle Sheet A is pasted.



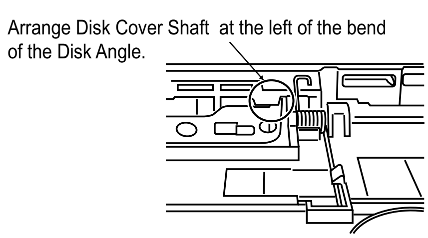
●Disk Angle FPC Cover is pasted.



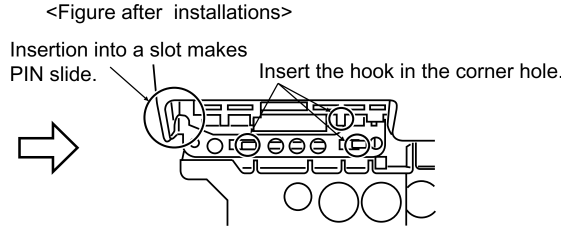
●PET Tape is pasted.



■ Installation of Disk Cover

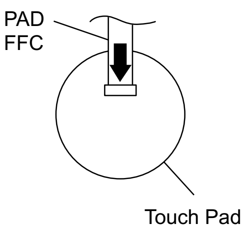


<Figure after installations>

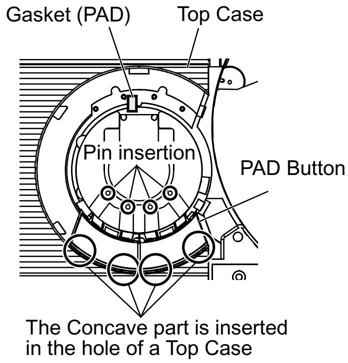


6.3.13. Assembly of Touch Pad

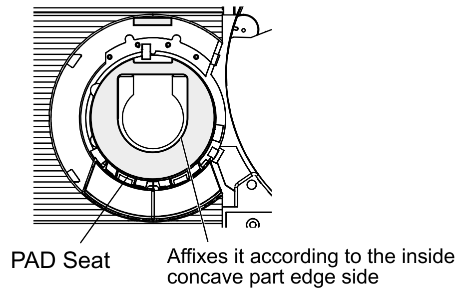
■ Insertion of PAD FFC



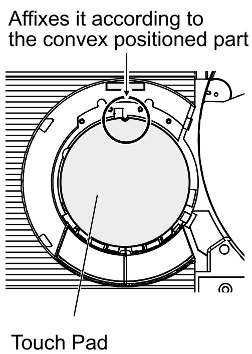
■ Installation of Pad Button



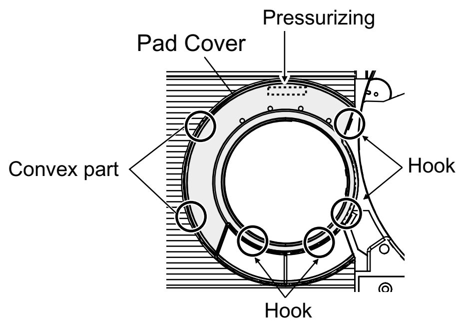
■ Affixation of PAD Sheet



■ Affixation of Touch Pad



■ Installation of Pad Cover

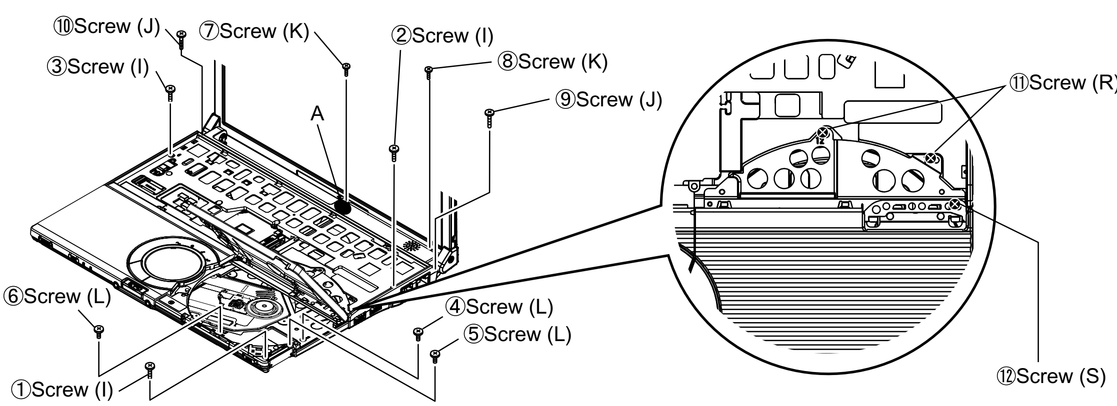


・Insert two places in the convex part in the ditch of a Top Case and hang Hooks four places.

6.3.14. Screw tightening procedure of each unit

When serving, the screw tightening is executed according to the undermentioned procedure.

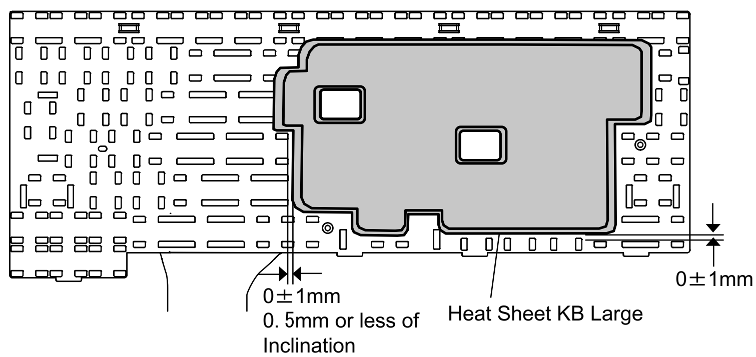
1. Screw tightening of Top Case
   - 1-1. DXQT2+E6FNL(I:N13) is tightened. No.1 to No.3
   - 1-2. DFHE5025XA(L:N1) is tightened. No.4 to No.6
   - 1-3. DXQT2+E6FCL(K:N12) is tightened. No.7, No.8
   - 1-4. DXQT26+D8FCL(J:N16) is tightened. No.9, No.10
   - 1-5. DXQT2+E12FNL(R:N11) is tightened. No.11
   - 1-6. DXQT2+E6FNL(S:N13) is tightened. No.12



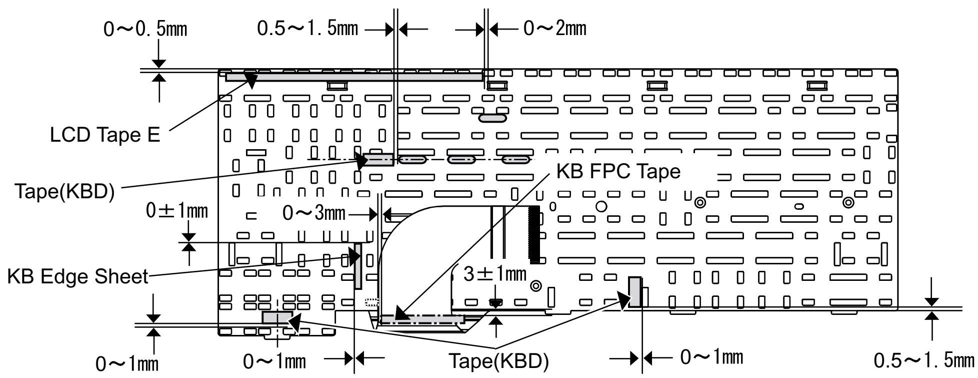
※ Conclude coloring part A pressing when you conclude ⑦Screw (K).

2. Installation of Keyboard

Preparation1. Heat Sheet KB Large is pasted.



Preparation2. Tape(KBD)/KB FPC Tape/LCD Tape E/KB Edge Sheet ispasted.



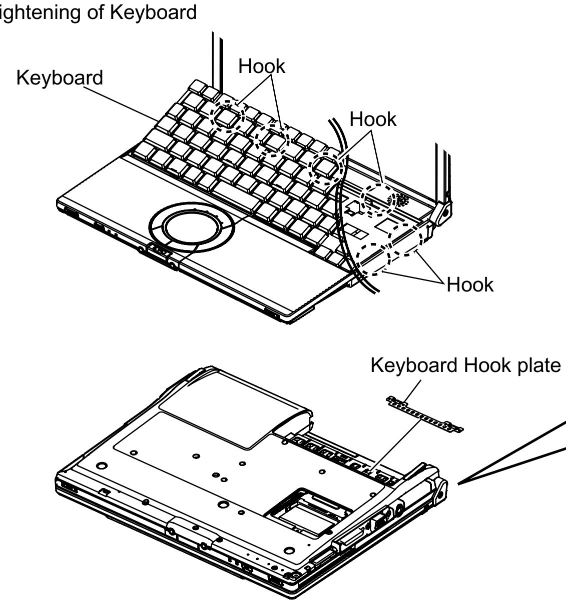
1.The Keyboard is surely installed in the Hook (2 places) at the right and the Hook (4 places) behind a Top Case .

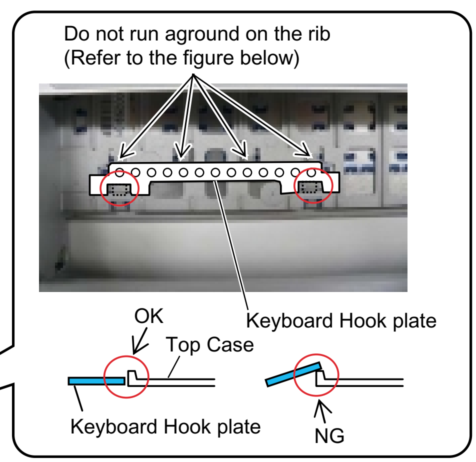
2.The Keyboard is held and the Keyboard Hook is inserted and locked.

Note:Never touch the edge part of the Keyboard Hook by bare-handed.

3.It is confirmed that the Keyboard Hook do not run aground in the rib.

●Screw tightening of Keyboard





3. Screw tightening of Bottom Case

1.The screw tightening is done in the undermentioned order.

3-1. DXHM0039ZA(E:N6) is tightened.No.1 to No.3

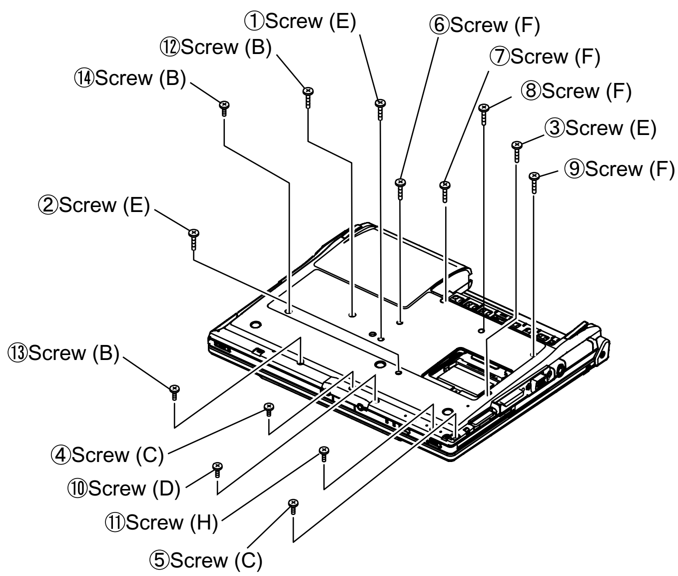
3-2. DXHM0057ZA(C:N7) is tightened. No.4,No.5

3-3. DXQT2+E12FNL(F:N11) is tightened. No.6 to No.9

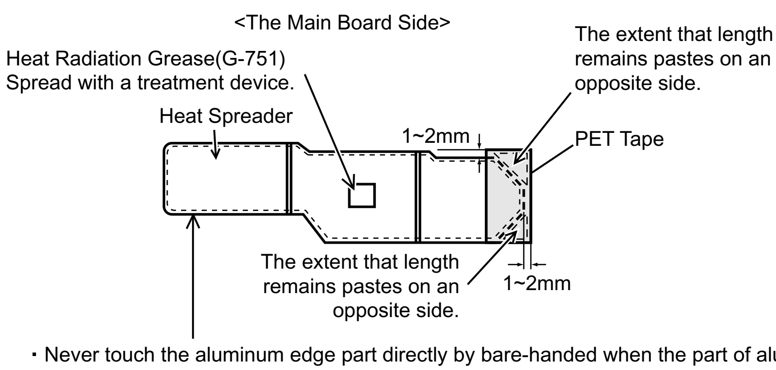
3-4. DXQT2+E10FNL(D:N10) is tightened. No.10

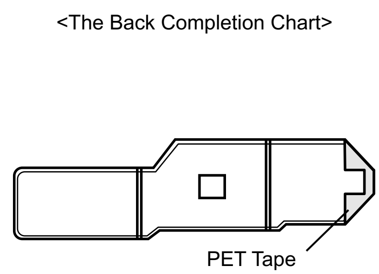
3-5. DXQT2+D4FNL(H:N9) is tightened. No.11

3-6. DRHM0092ZA(B:N4) is tightened. No.12 to No.14



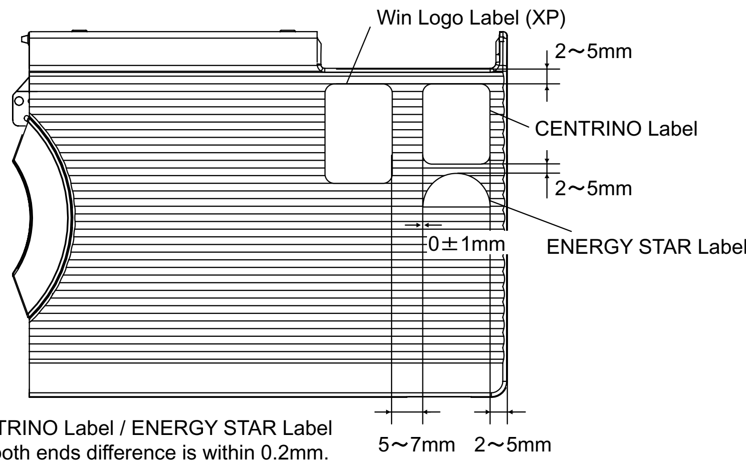
6.3.15. Specification of affixation of PET tape to Heat Spreader





・Never touch the aluminum edge part directly by bare-handed when the part of aluminum with a thin all surroundings bends. Correct in that case with a radio pincers etc. and instal.

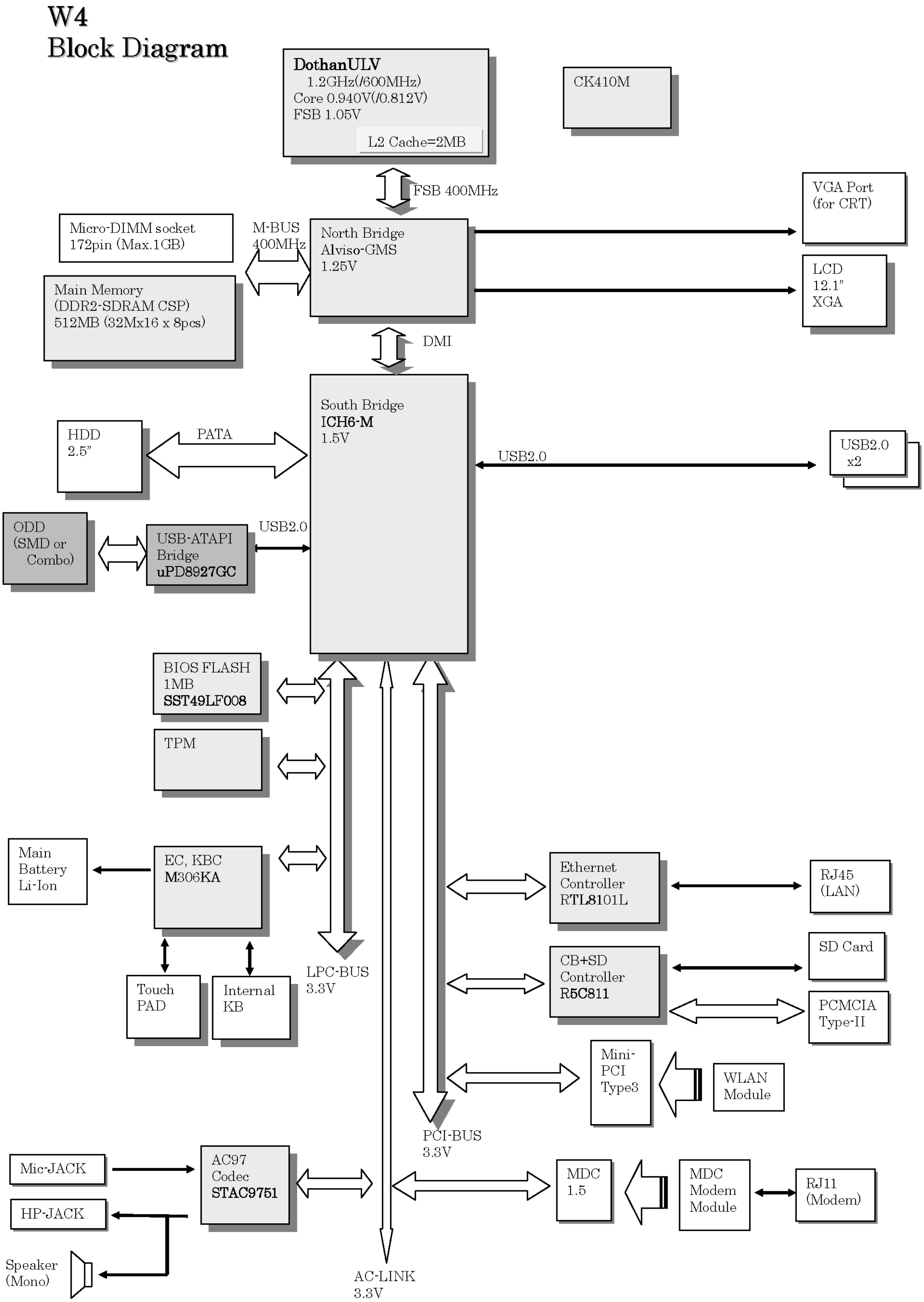
6.3.16. Affixation of Win Logo Label (XP), CENTRINO Label and ENERTGY STAR Label

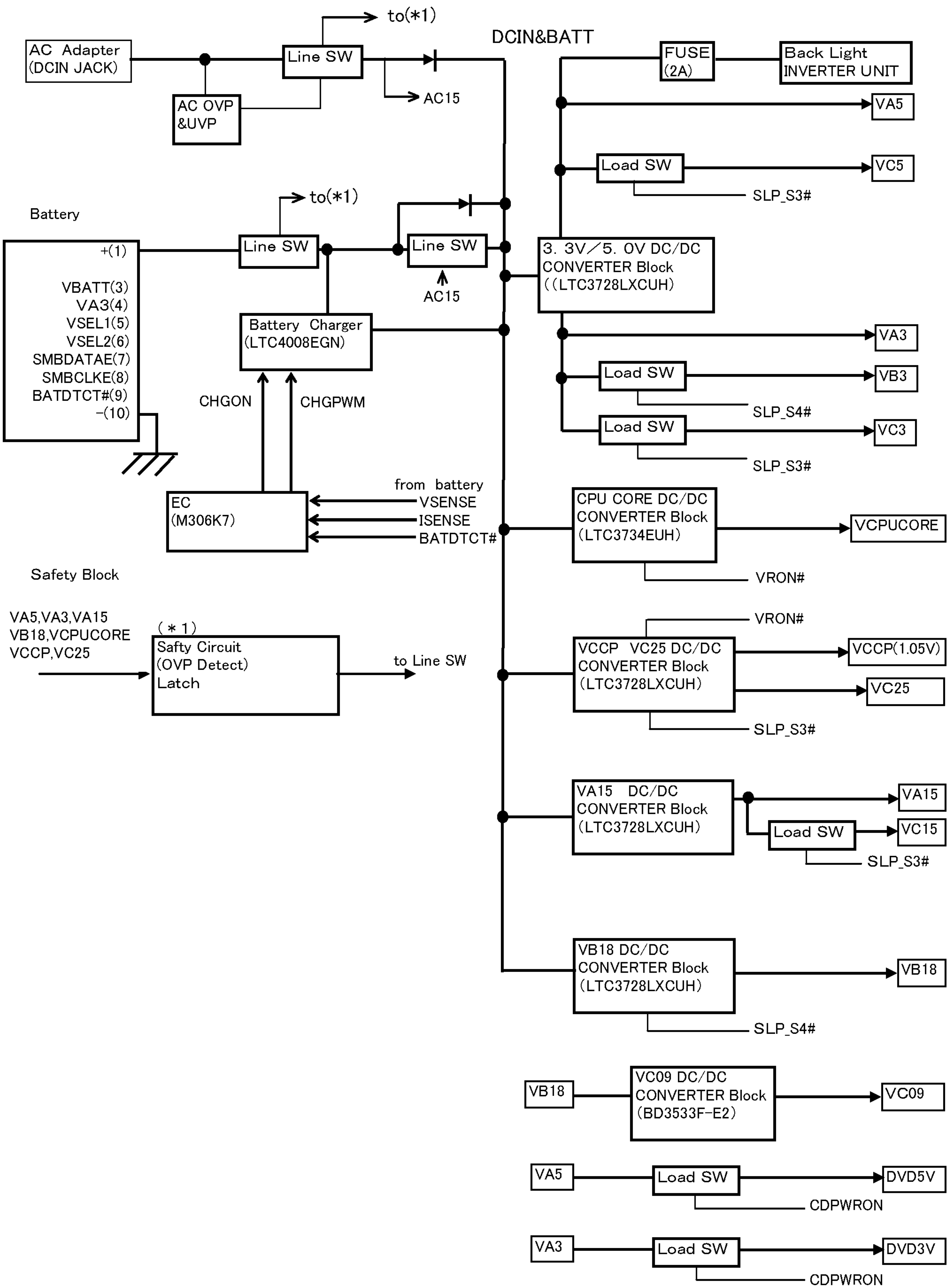


・In Win Logo Label / CENTRINO Label / ENERGY STAR Label Affixation inclination, the both ends difference is within 0.2mm.

7. Explanation of Hardware

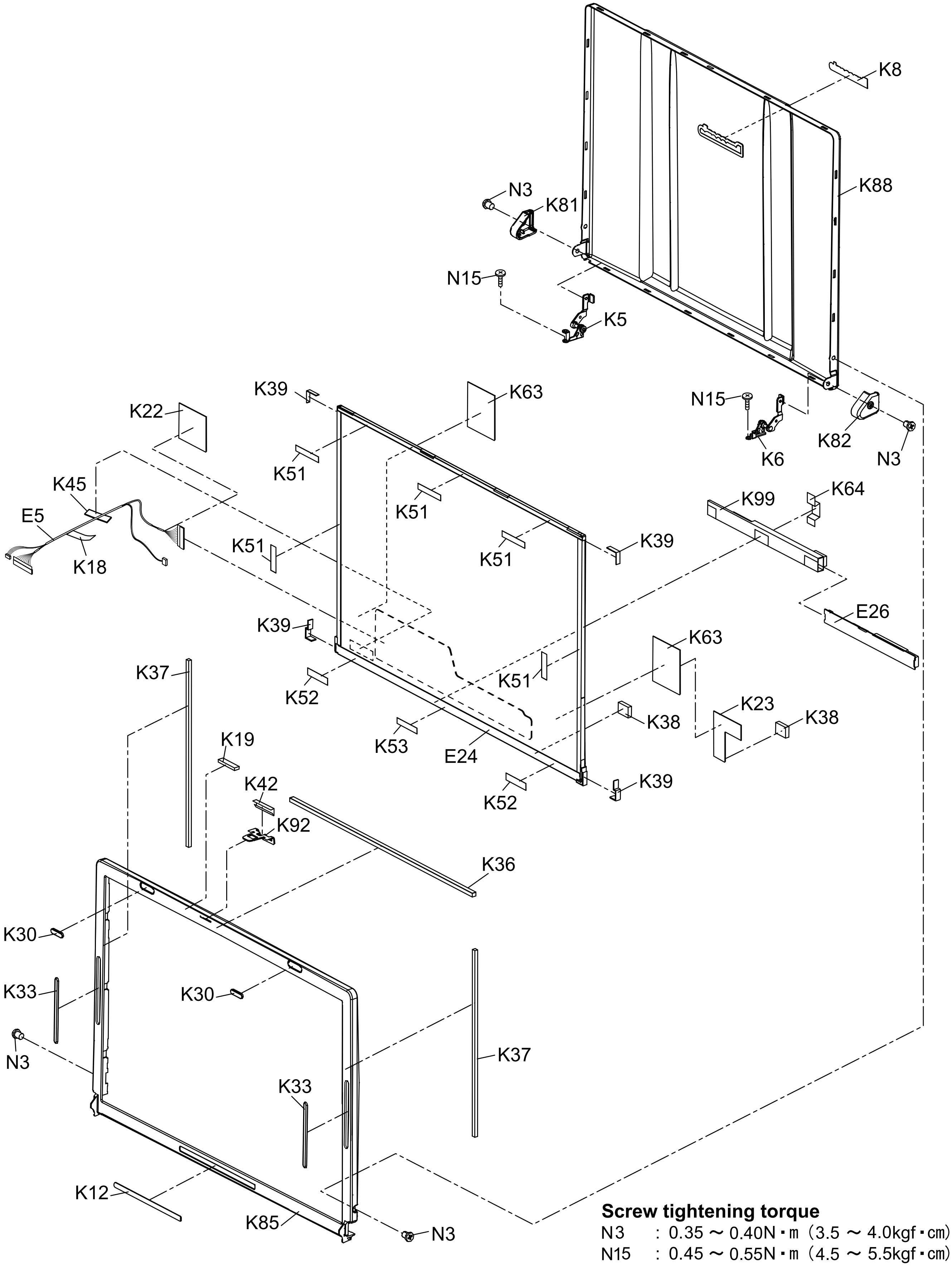
7.1. System Block Diagram




DCIN&BATT
AC Adapter
(DCIN JACK)
Line SW
to(*1)
AC OVP
&UVP
AC15
FUSE
(2A)
Back Light
INVERTER UNIT
VA5
Load SW
VC5
SLP_S3#
Battery
+(1)
VBATT(3)
VA3(4)
VSEL1(5)
VSEL2(6)
SMBDATAE(7)
SMBCLKE(8)
BATDTCT#(9)
−(10)
Line SW
to(*1)
Line SW
AC15
3. 3V／5. 0V DC/DC
CONVERTER Block
((LTC3728LXCUH)
Battery Charger
(LTC4008EGN)
VA3
Load SW
VB3
SLP_S4#
Load SW
VC3
SLP_S3#
CHGON
CHGPWM
from battery
EC
(M306K7)
VSENSE
ISENSE
BATDTCT#
CPU CORE DC/DC
CONVERTER Block
(LTC3734EUH)
VCPUCORE
VRON#
Safety Block
VA5,VA3,VA15
VB18,VCPUCORE
VCCP,VC25
(＊1)
Safty Circuit
(OVP Detect)
Latch
to Line SW
VRON#
VCCP VC25 DC/DC
CONVERTER Block
(LTC3728LXCUH)
VCCP(1.05V)
VC25
SLP_S3#
VA15 DC/DC
CONVERTER Block
(LTC3728LXCUH)
VA15
Load SW
VC15
SLP_S3#
VB18 DC/DC
CONVERTER Block
(LTC3728LXCUH)
VB18
SLP_S4#
VB18
VC09 DC/DC
CONVERTER Block
(BD3533F-E2)
VC09
VA5
Load SW
DVD5V
CDPWRON
VA3
Load SW
DVD3V
CDPWRON

8. Exploded View

8.1. Display Section

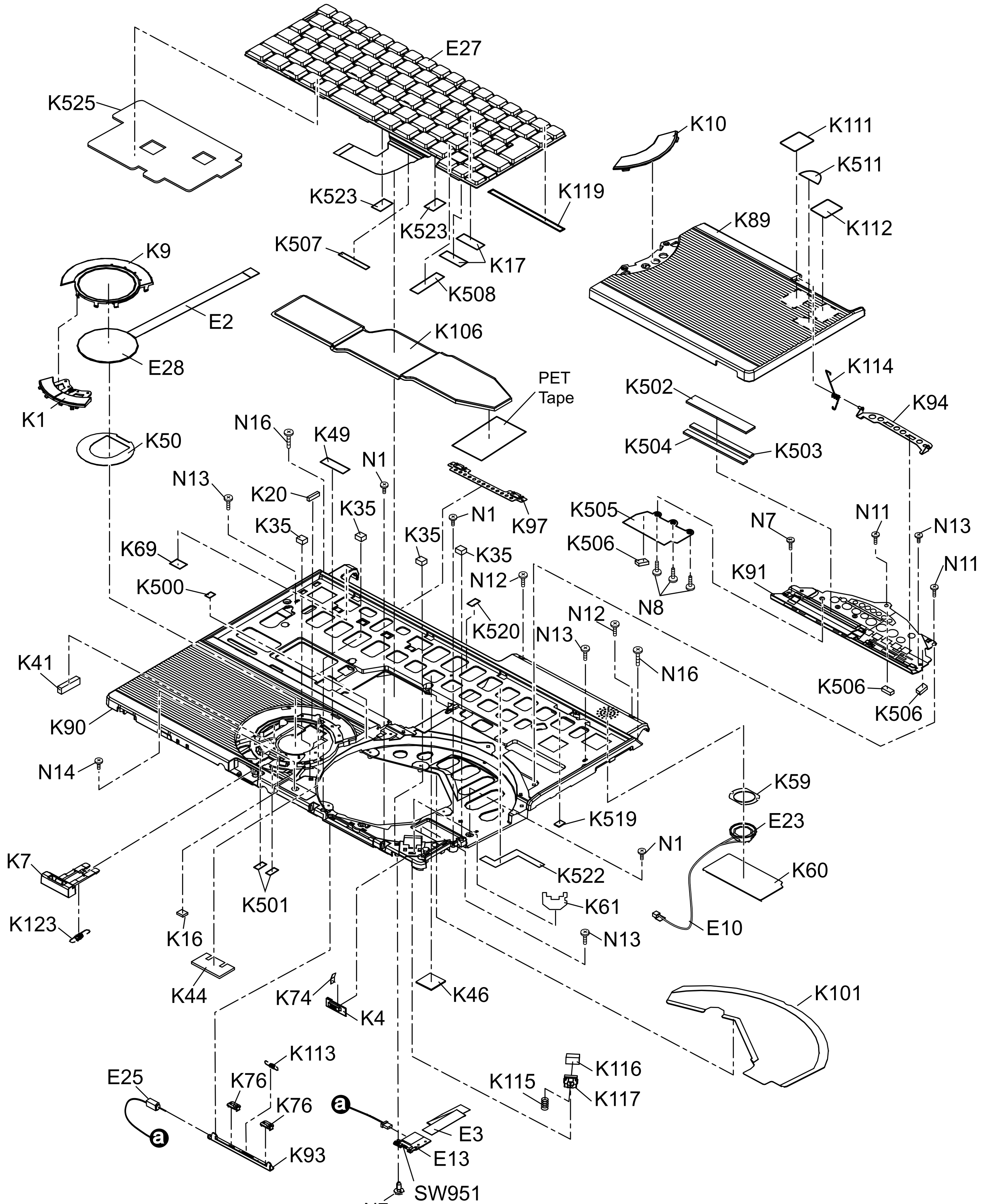


Screw tightening torque

N3 : 0.35 ～ 0.40N・m (3.5 ～ 4.0kgf・cm)

N15 : 0.45 ～ 0.55N・m (4.5 ～ 5.5kgf・cm)

8.2. Cabinet Section



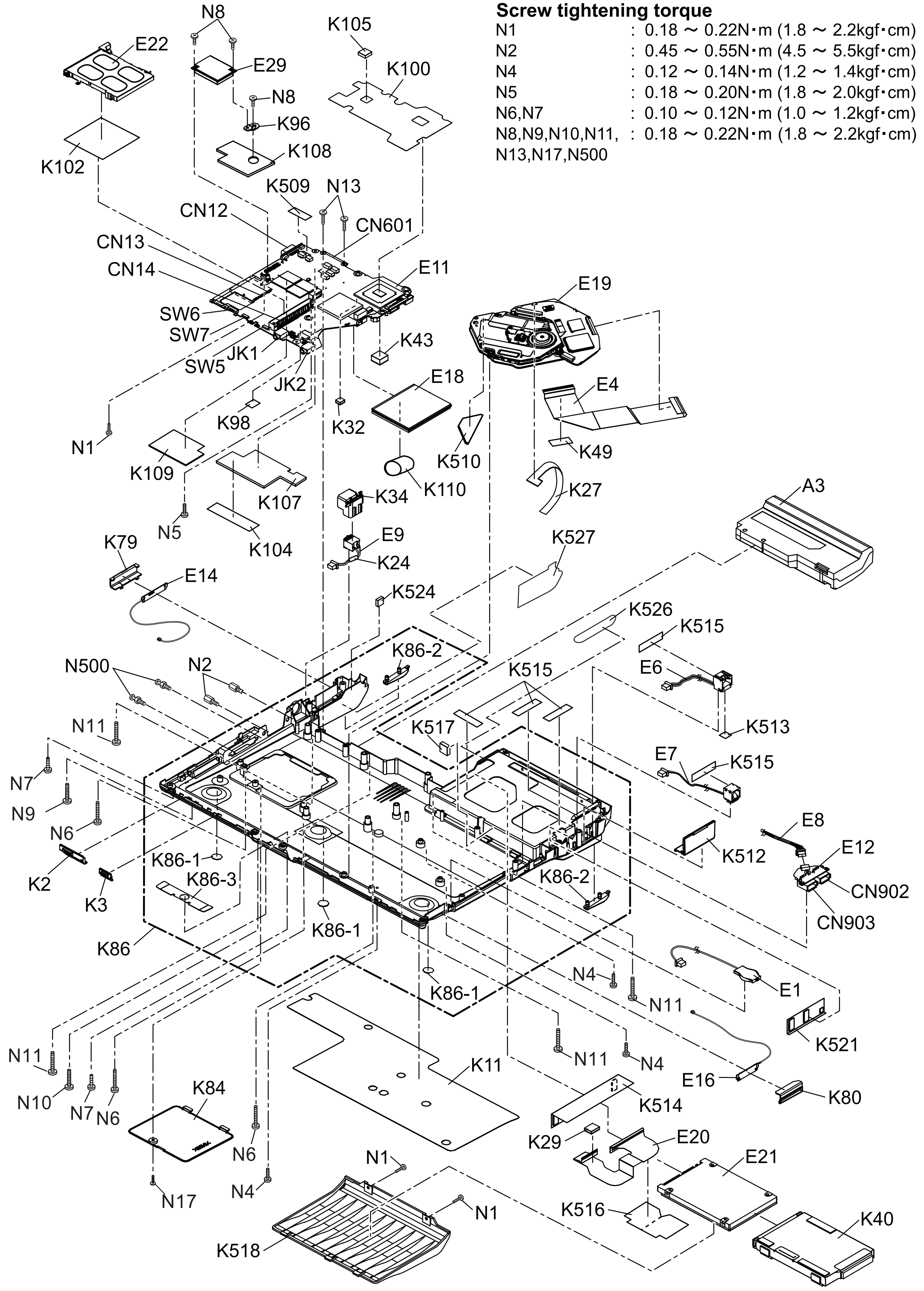
Screw tightening torque

N1,N8,N11, N12,N13,N14	:	0.18 ~ 0.22N・m (1.8 ~ 2.2kgf・cm)
N7	:	0.10 ~ 0.12N・m (1.0 ~ 1.2kgf・cm)
N16	:	0.45 ~ 0.55N・m (4.5 ~ 5.5kgf・cm)

8.3. Bottom Section

Screw tightening torque

N1	: 0.18 ～ 0.22N·m (1.8 ～ 2.2kgf·cm)
N2	: 0.45 ～ 0.55N·m (4.5 ～ 5.5kgf·cm)
N4	: 0.12 ～ 0.14N·m (1.2 ～ 1.4kgf·cm)
N5	: 0.18 ～ 0.20N·m (1.8 ～ 2.0kgf·cm)
N6,N7	: 0.10 ～ 0.12N·m (1.0 ～ 1.2kgf·cm)
N8,N9,N10,N11, N13,N17,N500	: 0.18 ～ 0.22N·m (1.8 ～ 2.2kgf·cm)



9 Replacement Parts List

Note: Important Safety Notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

CF-W4HWEZZBM

REF.NO. and AREA	PART NO.	DESCRIPTION	Q'TY
Main Block Unit			
CN12	K1FB315BA003	VGA CONNECTOR	1
CN13	K1NA09E00076	CONNECTOR	1
CN14	K1NA68E00096	CONNECTOR	1
CN601	K1KA10B00233	CONNECTOR	1
CN902	K1FB104B0055	USB CONNECTOR	1
CN903	K1FB104B0055	USB CONNECTOR	1
JK1	K2HC103B0205	HEADPHONE JACK	1
JK2	K2HC103B0205	MICROPHONE JACK	1
SW5	K0ZZ00000617	SLIDE SW	1
SW6	ESD165225	POWER SW	1
SW7	K0D112B00071	W-LAN SW	1
SW951	K0D113B00081	SLIDE SW	1
E1 ⚠	CR-2032/K5A	COIN BATTERY	1
E2	DFJK12U112BB	PAD FFC	1
E3	DFJK20T108BB	SW PCB FFC	1
E4	DFJK9000ZA	DRIVE FFC	1
E5	DFJS957ZA	LCD CABLE	1
E6	DFJS979ZA	LAN CABLE	1
E7	DFJS959ZB	MODEM CABLE	1
E8	DFJS960ZA	MAIN SUB CABLE	1
E9	DFJS961ZB	DC-IN CABLE	1
E10	DFJS962ZA	SP CABLE	1
E11	DL3U11436VBB	PCB, MAIN RTL	1
E12	DL3U21436VBB	PCB, USB RTL	1
E13	DL3UP1492KAA	PCB, SW RTL	1
E14	N1ZYYY000002	ANTENNA PCB-L ASSY	1
E16	N1ZYYY000001	ANTENNA PCB-R ASSY	1
E18	N5HZC0000014	WIRELESS LAN MODULE	1
E19	UJDA769PD1-A	CD-R/RW, DVD-ROM DRIVE	1
E20	DL3UP1443AAA	FPC, HDD	1
E21	N3CAYYY00006	HDD	1
E22	K1YYZZ000060	CONNECTOR	1
E23	L0AA01A00018	SPEAKER	1
E24	L5EDD3Q00023	LCD	1
E25	L9AAA5DB0010	SOLENOID	1
E26 ⚠	N0GB1J000012	INVERTER	1
E27	N2AZZJ000038	KEY BOARD US	1
E28	N2EAYYY00006	TOUCH PAD	1
E29	N5HAZ0000012	MODEM	1
Accessories			
A1 ⚠	CF-AA1623AM6	AC ADAPTOR	1
A2 ⚠	K2CG3DR00003	AC CABLE	1
A3 ⚠	N4HULTA00009	LITHIUM ION BATTERY PACK	1
A4 ⚠	DFQX5574ZA	MANUAL	1
A500	DFJS954ZA	MODEM CABLE	1
Packing Material			
P1	DFPE0806ZB	HOLDER	1
P2	DFPE0812ZB	PAD W	1
P3	DFPE0819ZA	BATTERY SPACER	1
P5	DFPK1037YA	ACCESSORIES BOX	1
P6	DFPK1194YA	PACKING CASE (EXPORT)	1

P7	DFPN0827ZB	CUSHION T	2
P8	DFPN0828ZB	CUSHION B	2
Mechanical Parts			
K1	DFBC0314ZB-0	PAD BUTTON	1
K2	DFBD0180ZB-0	POWER KNOB	1
K3	DFBD0182ZA-0	LAN SW KNOB	1
K4	DFBD9006ZA-0	DISK EJECT KNOB ASSY	1
K5	DFBH3043ZA	HINGE-L USA	1
K6	DFBH3044ZA	HINGE-R USA	1
K7	DFBS0068ZC-0	LCD KNOB	1
K8	DFGB0089VB-0	PANASONIC LABEL	1
K9	DFGE0106ZB-0	PAD COVER	1
K10	DFGE0107ZB-0	PAD COVER RING	1
K11 ⚠	DFGT1028ZA	BOTTOM SHEET USA	1
K12	DFGX0397ZA-0	LCD BATT RUBBER	1
K16	DFHE0215ZA	SHEET	1
K17	DFHE0416ZA	TAPE (KBD)	2
K18	DFHE0436ZA	CLOTH LCD CABLE 1	1
K19	DFHE0843ZA	LCD MAGNET	1
K20	DFHE0844ZA	GASKET PAD	1
K22	DFHE0943ZA	GASKET CLOTH (LCD CABLE)	1
K23	DFHE0945ZA	GASKET CLOTH (LCD)	1
K24	DFHE0953ZA	SHEET	1
K27	DFHE0957ZA	GASKET CLOTH	1
K29	DFHG1471YA	LCD METAL DAMPER B	1
K30	DFHG1546ZB-0	LCD RUBBER	2
K32	DFHG1744ZA	M-PCI CUSHION	1
K33	DFHG1766ZA-0	LCD SIDE RUBBER	2
K34	DFHG1767ZA-0	DC JACK HOLDER	1
K35	DFHG1768XA-0	DISK COVER CUSHION	4
K36	DFHG1771ZA	LCD DAMPER A	1
K37	DFHG1772ZA	LCD DAMPER B	2
K38	DFHG1773ZA	LCD DAMPER C	2
K39	DFHG1774ZA	LCD SIDE DAMPER	4
K40	DFHG1808YA	HDD CASE ASSY W4 USA	1
K41	DFHG1778ZA	PCMCIA STOPPER CUSHION	1
K42	DFHG1779WA	LCD HOOK CUSHION	1
K43	DFHG1786ZA	CPU CUSHION	1
K44	DFHG1787ZA	MINI-PCI CUSHION	1
K45	DFHG1797ZA	REAR DAMPER	1
K46	DFHG1800ZA	BATT CUSHION(W4)	1
K49	DFHP7106YA	BOTH SIDES TAPE	2
K50	DFHP7221YA	PAD SHEET	1
K51	DFHP7208YA	LCD FRONT TAPE A	5
K52	DFHP7209ZA	LCD FRONT TAPE B	2
K53	DFHP7210ZA	LCD FRONT TAPE C	1
K59	DFHR3A37ZA	SPEAKER RING	1
K60	DFHR3A38ZA	SPEAKER BOX	1
K61	DFHR3A71XA	DISK EJECT KNOB SHEET	1
K63	DFHR3A78ZA	LCD INSULATOR	2
K64	DFHR3A95ZA	INVERTER TAPE	1
K69	DFHR3B19ZA	HINGE BACKUP SHEET T4	1
K74	DFHR3B53ZA	DISK KNOB SHEET	1
K76	DFHR6188ZA	DISK LOCK BUSH	2
K79	DFKE0772ZA-0	ANTENNA COVER-L	1
K80	DFKE0773ZA-0	ANTENNA COVER-R	1
K81	DFKE0774ZA-0	HINGE COVER L	1
K82	DFKE0775ZA-0	HINGE COVER R	1
K84	DFKE0815ZA-0	DIMM COVER LIGHT	1
K85	DFKF0255ZB-0	LCD FRONT	1

K86	DFKF8165ZA-0	BOTTOM CASE USA ASSY	1
K86-1	DFHG371ZA-1	FOOT RUBBER	3
K86-2	DFKL0026ZA-0	FOOT RUBBER BACK	2
K86-3	DFMX1174ZA	AUDIO JACK SHEET	1
K88	DFKM0482ZA-0	LCD REAR (SANKI)	1
K89	DFKM0483UA-0	DISK COVER (TOUGH COMBO)	1
K90	DFKM8170VA-0	TOP CASE ASSY	1
K91	DFKE0817ZA	DISK ANGLE MG	1
K92	DFMD1189XA	LCD HOOK	1
K93	DFMD1190YA	DISK COVER LOCK	1
K94	DFMD2165ZA	DISK CV SHAFT ANGLE	1
K96	DFMD3121ZA	MDC PLATE	1
K97	DFMD4057ZA	KB HOOK F999	1
K98	DFMX0635ZB	SHEET	1
K99	DFMX1155ZA	INVERTER BOX	1
K100	DFMX1156ZA	MAIN PW SHEET1	1
K101	DFMX1158ZA	DVD PWB SHEET	1
K102	DFMX1160ZA	PCMCIA-MAIN SHEET	1
K104	DFMX1184ZA	SW CABLE SHEET	1
K105	DFMY0399ZA	MCH RUBBER	1
K106	DFMY3191YA	HEAT SPREADER TOP	1
K107	DFMY3192ZA	HEAT SPREADER BOTTOM	1
K108	DFMY3206ZA	MEMORY SHEET TOP	1
K109	DFMY3207ZA	MEMORY SHEET BOTTOM	1
K110	DFMY3208ZA	WLAN SHEET	1
K111	DFQT9974ZA	WINDOWS XP LABEL (FOR NOTE)	1
K112	DFQT9948ZA	CENTRINO LABEL	1
K113	DFUD0037ZA	DISK KNOB SPRING	1
K114	DFUN0078ZB	DISK COVER ARM SPRING	1
K115	JDBC0044ZA	BREAK SPRING	1
K116	JDBG0032ZA	BREAK PAD	1
K117	JDKJ0059ZA	BREAK LEVER	1
K119	DFHP7180ZA	LCD TAPE E	1
K123	DFUD0040ZA	LATCH SPRING	1
K500	DFHR3C40ZA	DISK COVER SHEET	1
K501	DFHR3C14ZA	LCD KNOB SPACER	2
K502	DFHR3C36ZA	DISK ANGLE SHEET A	1
K503	DFHR3C37ZA	DISK ANGLE SHEET B	1
K504	DFHR3C38ZA	DISK ANGLE SHEET C	1
K505	DFMD7A63ZA	DISK ANGLE FPC COVER	1
K506	DFHG1833ZA	DISK ANGLE CUSHION	3
K507	DFHP7226ZA	KB FPC TAPE	1
K508	DFHR3C39ZA	KB SHEET	1
K509	DFHR3C33ZA	LCD CABLE FIX SHEET	1
K510	DFHR3B86ZA	DVD HEAT INSULATION PACK	1
K511	DFQT9675ZA	ENERGY STAR LABEL	1
K512	DFKE0781ZA-0	RJ DUST COVER	1
K513	DFHP7228ZA	RJ DUST COVER FIX TAPE	1
K514	DFHG1835ZA	HDD DAMPER	1
K515	DFHR3C13ZA	RJ CABLE SHEET	5
K516	DFHR3C19ZA	HDD FPC EDGE SHEET	1
K517	DFHR3C24ZA	USB CABLE FIX SHEET	1
K518	DFKE0770ZA-0	HDD COVER	1
K519	DFHG1834ZA	SP CABLE FIX CUSHION	1
K520	DFHP7231ZA	KBD TAPE	1
K521	DFHR3B99ZA	RJ CABLE BLIND SHEET	1
K522	DFHR3C12ZA	SP CABLE SHEET	1
K523	DFHR3C18ZA	KB EDGE SHEET	2
K524	DFHR3C54ZA	HINGE BACKUP SHEET	1
K525	DFMY0421ZA	HEAT SHEET KB LARGE	1

K526	DFGX0428ZA-0	BATTERY SHEET	1
K527	DFGX0429ZA-0	BATTERY SHEET L	1
N1	DFHE5025XA	SCREW	6
N2	DFHE5035ZB	SCREW	2
N3	DRHM0074ZA	SCREW	4
N4	DRHM0092ZA	SCREW	3
N5	DRQT2+G6FKL	SCREW	1
N6	DXHM0039ZA	SCREW	3
N7	DXHM0057ZA	SCREW	4
N8	DXQT2+D25FNL	SCREW	6
N9	DXQT2+D4FNL	SCREW	1
N10	DXQT2+E10FNL	SCREW	1
N11	DXQT2+E12FNL	SCREW	6
N12	DXQT2+E6FCL	SCREW	2
N13	DXQT2+E6FNL	SCREW	6
N14	DXQT2+F2FNL	SCREW	1
N15	DXQT26+D5FNL	SCREW	2
N16	DXQT26+D8FCL	SCREW	2
N17	XSB2+4FNL	SCREW	1
N500	K1YE50000022	SCREW, I/O PIN	2